DUN'S REVIEW and Modern Industry

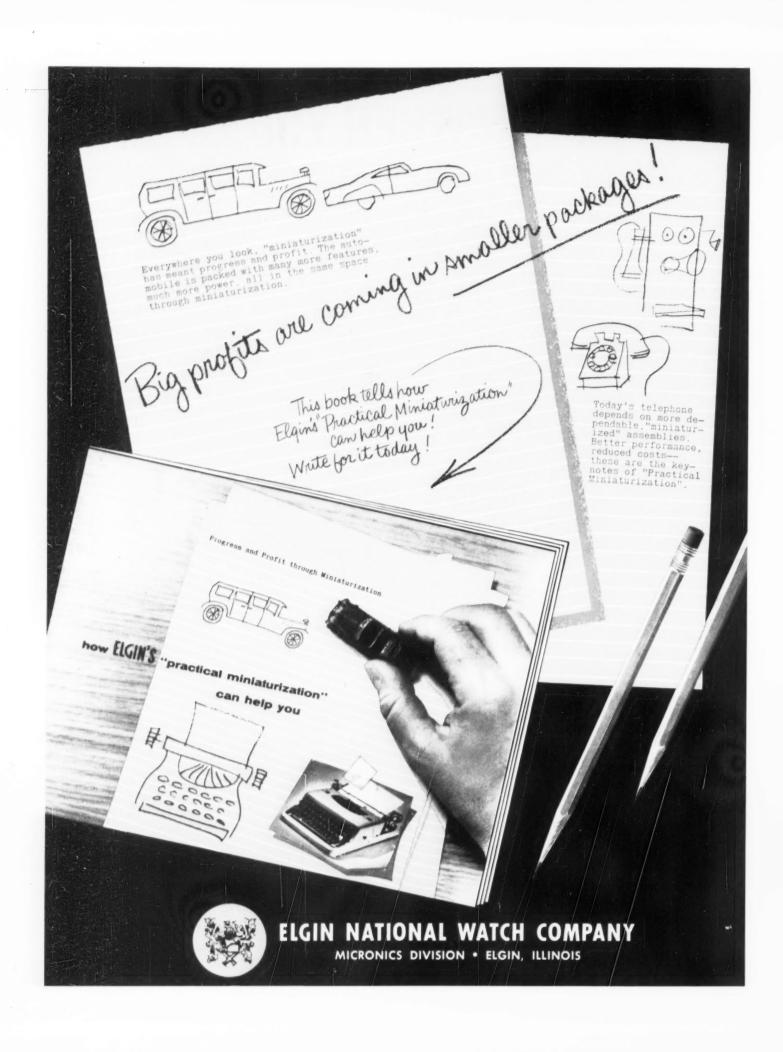
A DUN & BRADSTREET PUBLICATION

AUGUST 1956 750



Business Men's Expectations
What's Wrong with the Income Tax
Pinpointing the New Industrial Markets
Ebonite: New Ways to Use an Old Material

COVER: PAGE 5



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valuable "know-where" to the "know-how" of selling.

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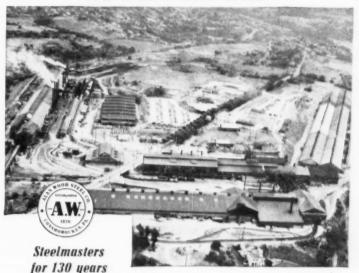
The Cover

Over the hump go cars at the Southern Pacific Railroad's Taylor Yard in Los Angeles, Calif. Under the watchful eye of the towerman, cars roll down to one of the forty classification tracks.

COLOR TRANSPARENCY BY DICK STEINHEIMER

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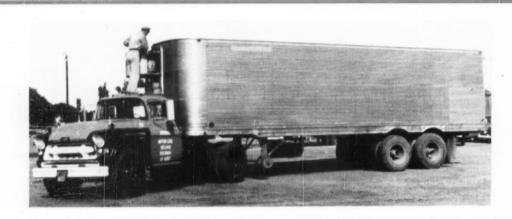
Those numbers in the picture at right point out features that make business almost a *pleasure* when you work behind the wheel of a modern Chevrolet Task-Force truck! Here are some of the reasons why hauling in a Chevy is *easy on you*:

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and controls within easy sight and reach. **6** Panoramic windshield provides a full 1000 square inches of forward viewing area to make driving safer, easier. **7** Full-View rear window, optional at extra cost, adds to safe, convenient viewing as well as truck style.

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NEW CHEVROLET TASK·FORCE TRUCKS

Anything less is an old-fashioned truck!



Paul Wooton devotes his column this month to an analysis of the major long-term effects of the steel strike and to a study of the views and policies of George M. Humphrey, Secretary of the Treasury.



WASHINGTON expects the steel strike to have dramatic and far-reaching effects. Its long term aspects are infinitely more important than the immediate consequences. The aftermath may have world-wide repercussions.

Information reaching Washington indicates that the strike has given great impetus to industrywide bargaining and that consumers have been aroused as never before. When there was talk of only token resistance to union demands, since under current conditions the increased cost could be passed on, fabricators made it clear that they must be consulted before any such surrender

The influence of the third party is regarded as a highly significant development in labor relations. Administration policy strongly favors settlement of labor disputes by the parties concerned. At the same time, it could not sit by and act as though there were no steel strike. Unofficially, the attention of each side was called to the inflationary aspects of any substantial increase in the price of so basic a commodity as steel, which would touch off a wave of wage increases in other industries. The parties were urged to consider the public welfare and the inflationary effect of such developments. Attention was also called to the necessity of meeting competition

from producers in foreign countries

It is believed generally that David J. McDonald, head of the union, had banked upon the assumption that in an election year and with business in high gear, the industry would be unwilling to take on a strike. He is said to have been the most surprised man in America when the industry took its determined stand.

This left McDonald in a position from which it was difficult to retreat. Before the strike, McDonald had conferred personally with the chairman of the Federal Reserve Board as to the possible inflationary effect of a substantial wage increase. This, and other such acts, led officials to conclude that he was a labor statesman. The feeling now has changed considerably.

Legislators were quick to realize that increased wages for steel workers meant an increase in the tax rates that had been worked out to finance the road program. The type of roads prescribed in the new law calls for many over and under passes. Roads of that character take much more steel than conventional roads. In addition to the increase in costs, the strike delayed the road program to an extent hard to measure but described as "substantial." The same sort of observation came from representatives of the construction industry and the railroads.

Protests against price increases were not confined to the automobile, construction, and other large users. Small users have flooded Capitol Hill with letters pointing out that increased steel prices are of serious import to them.

Economists in the federal serv-

ice think boom conditions have been engendered by the strike. The upward pressure on prices will be felt around the world, they feel. Europe already is suffering from pressure on its price structure. Now there is more danger that the seams



GEORGE M. HUMPHREY

Keeping the budget in balance and reducing the national debt are the main responsibilities of George M. Humphrey, the Secretary of the Treasury.

Political considerations have not changed his early conviction that any family, business or government that regularly pursues a policy of spending more than it takes in is headed for an inexcusable type of disaster. That is why he advocated use of the 1956 fiscal surplus for debt reduction rather than for a tax cut. He hopes to implant in the public mind an understanding of the value of sound money that will make it politically unwise to advocate measures that impair the value of the dollar.

One of the greatest disservices ever done the American people, Humphrey believes, was to allow such a deep decline in the purchasing power of the dollar. Most legis-

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lators oppose sales taxes, but Humphrey does not understand why the same men will support measures which incite inflation. He regards inflation as a sales tax without exemptions.

When asked if it were not the duty of the Secretary of the Treasury to keep the interest rate low on the national debt, Humphrey said it would not be good for the country to depress the interest rate to an unduly low level. He thinks interest rates should be allowed to fluctuate with the volume of money demand. Interest rates must be high enough to encourage saving so that enough expansion can be financed to provide a million new jobs every year. Someone must save and invest when it requires from \$10,000 to \$20,000 of capital to provide for a single job. One of the great needs, he feels, is to provide assurances that savings will not be "stolen" by inflation. In addition, he thinks savings must earn enough to provide savings incentive.

"If inflationary pressures prevail," says Humphrey, "they depress the value of money. They destroy the value of savings. If deflationary pressures prevail, they set in motion a chain of factors that are also detrimental. The ideal situation is to keep those pressures fairly and evenly balanced."

Brakes on Demand

The Treasury Secretary never loses an opportunity to point out the fallacy of stimulating business when shortages of materials and manpower result in bidding up prices. In a situation such as early 1956, he said it was wholesome for demand to hesitate a little so that production might catch up. Increase in Federal Reserve discount rates, he thinks, is one way to put the brakes on demand.

Humphrey admits that it is difficult to judge accurately when the level of installment buying is too high. He believes it is possible, however, to sense excesses and to know when that type of credit should be

slowed down so that payments on goods already bought can catch up.

Since excesses in the accumulation of inventory put people out of work, Humphrey favors a policy of allowing credit to tighten as demand increases, as one means of keeping inventories at a reasonable level. He points out that inventory accumulates in the hands of the public as well as in the stores of retailers or in the plants of manufac-

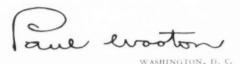
Favors Debt Limit

A temporary extension of the limit on the national debt to \$278 billion was recommended and welcomed by Humphrey because of the challenge presented by the "tight fit." "We will have to watch every penny every day," he says. He knows it will call forth all the talent of the Treasury staff to meet obligations within the \$278 billion limit, but he believes it can be done and that the limitation will restrain spending by executive agencies and on the appropriations Congress will

The amount of government spending was dramatized as well as simplified when Humphrey reduced disbursements to a daily average of \$250 million. Any lag in the mail or in the accounting process makes quite a difference in estimating what the balance may be on any future date.

Humphrey feels that it is his duty to keep the governors of the Federal Reserve abreast with his thinking, but, under the law, monetary decisions must be left to them.

"We must forge," Humphrey himself has said, "a more cordial and a more cooperative relationship between government and business. Without it we are inviting the unbalance that plunged America and the world into the great depression. We must exert every effort to avoid another depression like that of the thirties. If complete confidence in the currency can be established, unlimited opportunities in the future are opened up."



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Let Tufflex Fabrics and Tufflex help YOU! For complete information and samples, write Wood Conversion Company, Dept. 239-86, First National Bank Bldg., St. Paul 1, Minn.



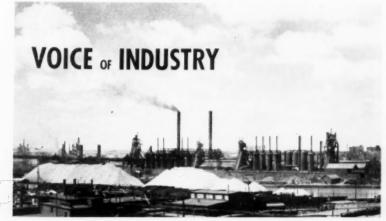
—and in the furniture field.

Tufflex is helping to increase quality and reduce labor-material costs. For instance, Tufflex can be die-cut with firm, true edges. Doesn't bunch or sag—keeps upholstery lines tailored and makes cushioning comfortable.



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SPECIAL TO DUN'S REVIEW AND MODERN INDUSTRY

Four auto industry presidents' personal views on market drop—its causes and extent—the road ahead; plus a selection on foreign policy and the Presidential election.

1956 AUTO SALES SEEN 3RD HIGHEST

HARLOW H. CURTICE President, General Motors Corporation



At this time, it would appear that the demand for passenger cars this year will be in the area of 5.8 million units. This is a substantial decline from the es-

timate of 6.5 million units which I made in January of this year. However, in comparison with any previous years except 1950 and 1955, 1956 still may be considered a very good year. In fact, if the present trend continues, it will be the third best year in the history of our

There are several factors that contributed to the change in the trend of the 1956 automobile market, which became apparent for the first time early in April. Important among them has certainly been the Federal Reserve credit policy which has been a very restrictive one. I believe that the policy is not warranted and should be promptly reversed.

Another factor was a good deal of publicity, or rumors, early in the year to the effect that 1957 models would be introduced early and would offer revolutionary changes.

Such rumors were a negative factor in the sale of 1956 cars, and they can not be justified by the facts.

HENRY FORD II President, Ford Motor Company



Stability since April in the rate of new car purchases by consumers indicates an improved automotive production rate for the fourth quarter. Production in

May and June was held well below the rate of consumer buying in order to liquidate stocks.

There is every indication that dealers' stocks of the old models will be virtually liquidated by the time new models are introduced generally throughout the industry. The production of new models can thus be built up in line with the rate of consumer buying and the need to supply dealers with adequate stocks of new models.

We believe that consumers will buy the new models at a rate above the 1956 level provided there is no deterioration in the general economic picture.

The 6 million domestic sales volume, likely for 1956, was previously exceeded only in the peak years of 1955 and 1950. Volume was exceedingly high in 1955 because potential demand could not be satisfied completely in previous years. Current

"20 minutes of Verifax Copying saves a whole day of typing"

Mr. Reece Geissinger, President, Reece Geissinger Associates, Pittsburgh, Pa.

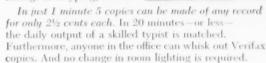
Back and forth across Mr. Ceissinger's desk flows a tide of correspondence from the metal parts manufacturers he represents, and from his customers and salesmen in eight states.

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"Why not look into the low cost of a Skellyfuel standby or prime fuel supply installation for your plant? The complete story of Skellyfuel's high quality, dependable service and superior installations is yours for the asking. Just write for our free 20-page color booklet.



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SKELLY OIL COMPANY

Industrial Division

605 West 47th Street . Kansas City 41, Missouri

results should be judged not in relation to such an abnormal year but to the average of recent years.

L. L. COLBERT

President, Chrysler Corporation



It is not unusual to experience somewhat of a decrease in automobile sales following a record year. Just the same, the present year is one of the larger

years in the history of automobile retail selling, a fact frequently over-

Chrysler Corporation's share of the retail market for the first half of 1956 was above the level for the preceding six-month period. During the first six months of 1956, the sales of Plymouths, Dodges, DeSotos, Chryslers, and Imperials accounted for approximately 16.4 per cent of the industry total as compared with 16 per cent in the last half of 1955.

Since January of 1956 our dealers have sold more cars than we have manufactured. The reason for this is that when the peak sales of 1955 began to drop off in December, we adjusted our production accordingly. As a result, dealer stocks of Chrysler Corporation cars are not excessive, and we expect an orderly clean-up of 1956 models at the end of the model run.

In general, we have confidence in a big and steady underlying demand in this country for automobile transportation. Our planning has been based on this confidence, and we have found no reason to change those plans, including our announced \$1 billion expansion program over the next several years.

GEORGE ROMNEY

President, American Motors Corporation



At the end of last vear, I was called pessimistic because I anticipated a dropoff in sales in 1956 as an aftermath of overproduction, excessive sales pres-

sure, and forward buying in 1955. We are experiencing the results to-

In recent months, the industry has undertaken by voluntary action to correct malpractises in selling,



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MATERIALS: TIME FOR A CHANGE?

A Special Emphasis Feature

DR&MI's Industrial Editor reports on the changing status of materials in industry. This article, which includes a report on a major survey of industrial materials-users, tells how the materials picture is changing - and why; and shows how users and suppliers alike can take advantage of materials trends and developments.

some of which were due to factory pressure and others to an atmosphere overcharged with aggressiveness. Improvements in the automotive business climate should result.

Realistic adjustment of production in recent weeks and a somewhat longer change-over period this Summer should reduce year-end inventories satisfactorily. While new models will not appear in quantity until well into the fourth quarter, we should expect the year to end on a rising car sales level.

FOREIGN POLICY, ELECTION ISSUE?

HERBERT BARCHOFF
President, Eastern Rolling Mills, Inc.



It has been too many years since we have had broad political discussion on our relations with other nations. While a monolithic foreign policy is imperative

during war, its continuance during the present potentially explosive period dissipates one of the greatest assets of our democracy—free and open debate.

Hitler blueprinted world conquest in Mein Kampf, and the free nations scoffed. What followed is history. The schism between Lenin and Trotsky was not on basic ideology or ultimate objectives-only on modus operandi. Likewise, the desanctification of Stalin leaves completely unaffected the aims of the present Russian leaders. Fundamental communist doctrine still calls for world socialization. The constantly shifting Soviet tactics demand the most incisive and objective thinking from the best minds that our country has.

Frank public discussion of foreign policy problems will help free us from the emotionalism which now prevents us from achieving the prime goal which dwarfs all other issues—the retreat of communism and the advance of democracy. We could be committing a tragic mistake by not requiring both our political parties and their candidates to air publicly and thoroughly their views on the greatest problem of our time.



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HIGHLIGHTS & sidelights

comment by

Honesta R. Gardner

Gas turbine autos - when?

With jet-propelled automobiles whizzing down the highways, kicking up clouds of publicity, it's easy to get the idea that turbine-powered cars are practically ready for large-scale production.

The gas turbine engine works. It promises simplicity and ease of maintenance. It should permit use of low-cost fuels. But those in the know say many improvements in turbine design and materials still are needed before a practical, producible unit can be built.

How long will it take? One tipoff can be found in the activities of the major oil companies. They're still building new plants to produce higher-octane fuels for higher-compression piston engines. And they certainly expect those plant investments to pay off. Esso Standard Oil, for instance, put a lot into its new Golden Esso Extra, designed to meet the needs of improved engines of the standard type.

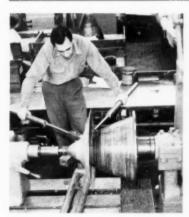
W. J. Sweeney of Esso Research and Engineering told a recent American Chemical Society meeting: "It is our speculation that it will be ten years or more before an appreciable number of gas turbine powered vehicles will be found on the road." And Stanley C. Hope, president of Esso, says, "We expect the trend toward higher-compression (piston) engines to continue at least through 1960."

In the next five years, there will be many improvements, and perhaps a switch from carburetion to fuel injection; but no revolutionary changeover. The gas turbine engine can't be expected to graduate from college before it has been through elementary school.

Meals in a minute

Chicken, tomato, or bouillon soup
... beef tidbits, shrimp curry,
chicken a la king ... cole slaw,
fruit or potato salad ... sandwiches
... ice cream ... milk, soft drinks,
coffee.

All this was on the menu as Vendo of Kansas City introduced its new line of coin-operated fooddispensing machines, specifically designed for in-plant feeding.



Know what they're called?

To most people a spinner is something a fisherman uses and a potter is a ceramic artisan. In metal working, though, spinning means forming metal on a mandrel, as in the Martin picture at the left; and to airplane and electronic equipment makers a potter is one who encapsulates electrical or electronic components with a protec-



tive resin coating. If you're interested in words like these that industry uses, and in the technical terms of atomic energy, metallurgy, textile processing, and engineering, you'll find a collection of industrial glossaries well worth having. A list of such glossaries is available without cost. For information on how to get it, see page 20.

Which do you pay for?





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New Executone intercom stops wasteful walking, speeds output, cuts costs, quickly pays for itself!

Don't let non-productive "walking time" walk away with your profits! Make every working hour give you more working minutes! Executone's instant and crystal-clear voice-to-voice contact links departments in split seconds. You get more work done faster—at lower cost!

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Company Compan

The hot foods came neatly packaged in rectangular, foil-lined cartons; the cold ones in cups and packages. Each machine offers three choices, and a set of eight can serve everything from soup to nuts.

It should be a welcome change from the lunch bucket and the hot dog stand. And it's a reminder to management of the opportunities new sales outlets like automatic vending offer to products designed and packaged to meet their specific requirements.

Your electrical future

While other industries display sales charts lined with peaks and valleys, the electrical industry keeps right on climbing. A recent investment survey points out that energy sales have risen 150 per cent in the past decade, while Gross National Product was going up only 85 per cent.

Why the electrical boom? One big reason, says Arnold Bernhard's Value Line, is that "electrical energy is the lifeblood of modern technology . . . and the trend toward increasing mechanization of industry, to offset the persistent advance of operating costs and the basic

scarcity of labor (aggravated by the long-term trend toward the shorter work week) . . . mean—industry's use of electricity will continue to mount."

The fact is that, without new powered equipment, it would be almost impossible for industry to hold current productivity levels, much less make them rise (see November 1954, page 31). But, with the help of such equipment, many industry leaders believe the physical volume of production can be doubled in the next 25 years, even though the labor force increases less than 20 per cent.

What is happening to houses?

Viewed from the outside, American homes aren't changing very much.

The Bureau of Labor Statistics, reporting on a survey of dwelling units started last year, notes that the vast majority (77.1 per cent) are of frame construction, brick (18.3 per cent) or wood (28.9 per cent) faced. Most of the rest (20.2 per cent) are of masonry construction, brick-faced.

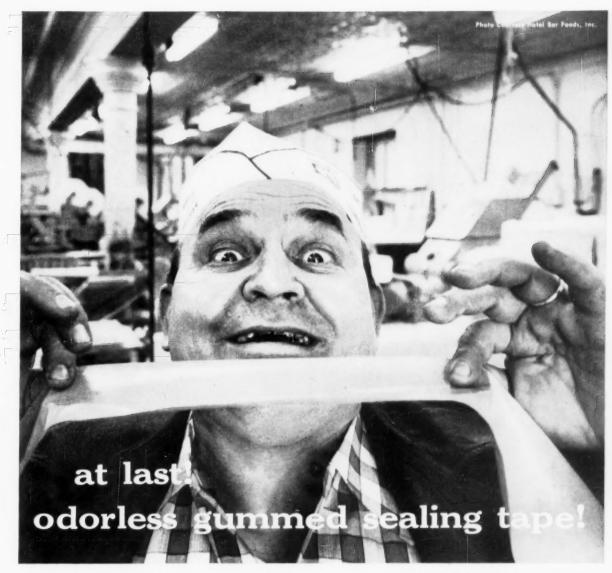
But there are changes. The utility room is replacing the basement; aluminum windows are being in-



Sun-powered radio

Much remains to be learned about practical application of the sun's energy. But the solar battery (see July 1954, page 36, and October 1955, page 33) is making real progress. Already used on rural telephone lines, it's now being adapted for radio operation. Sun-powered portable radios are a long way from replacing the standard type (this one, by Admiral, costs \$250), but they do provide a glimpse

of what may be ahead. They also point up the importance of the mite-sized transistors that take the place of radio tubes. Because the transistor's power requirements are very low, it becomes possible to operate portable radios and other equipment from surprisingly small solar batteries. The radio, housed in Catalin plastic, is at the left. The "sun power pak" with its silicon energy converters, at right.



It's the latest development from Hudson's research laboratories — gummed tape made with *odorless* RENACEL adhesive!

Now you no longer need put up with the objectionable odor of gummed sealing tape that permeates shipping rooms and clings to the clothing and hands of personnel. Danger of product contamination by gummed tape odor is a thing of the past.

RENACEL in Hudson gummed tape, provides other revolutionary advantages too! It seals even with ice

water. You can seal instantly, anywhere—in refrigerated or cold, drafty shipping rooms—without heating dispenser water or using costly wetting agents.

RENACEL, teamed with Supple-ization (another

Hudson exclusive), gives tape a smooth, silky feel, makes it even more pliant. The tape molds to the carton, handles easier, faster... Tape can be stored longer with safety. The rolls open easily, dispense smoothly... Bonding strength actually increases with time. Tape won't peel. Cartons remain sealed.

Now-at no additional cost-you can have more efficient sealing ... more protection for your cartons ... impressive dollar savings in tape! Specify one of Hudson's Gummed Sealing Tapes — Blue Ribbon for speed in complete closure—Orange Core for economical standard sealing.

For FREE TEST SAMPLE of Hudson Gummed Tape with RENACEL adhesive, write on your letterhead to Dept. D68 . Request Blue Ribbon or Orange Core.

RENACEL is Another Product of Continuing Research by Hudson.



MUELLER BRASS CO. improves LENSOMETER lower cost

Precision and extreme accuracy are vitally important functions of the Lensometer, manufactured by the Instrument Division of the American Optical Company, Buffalo, N. Y. The Lensometer is used to determine the focal strength and axis of an optical lens

Forgings made by the Mueller Brass Co. play an important role in the construction of the Lensometer and contribute to its outstanding performance. Formerly, the body of the Lensometer was produced from three sand castings, but these now have been replaced by just two forgings. Naturally, this simpli-

and, consequently, must be extremely precise in

operation to provide accuracy and uniformity in lens

prescriptions.

fies assembly, and the big forged bronze main support arm, shown above, along with the lens support bracket insures the constantly accurate alignment of the instrument. During the first year when forgings were used instead of castings, American Optical not only recovered the initial tooling costs but also realized considerable savings on each Lensometer produced. This is another good example of the way Mueller Brass Co. forgings can benefit a product two ways . . . better performance and lower costs. Chances are, your product can likewise be improved at a savings to you if you specify brass, bronze or aluminum forgings made by the Mueller Brass Co.

FORGING at substantially



WRITE TODAY FOR THE ENGINEERING MANUAL YOU NEED



Mueller Brass Co. Forgings Engineering Manual H-58565

Tuf-Stuf Aluminum Bronze Allays Engineering Manual H-58563

600 Series Bearing Alloys Engineering Manual FM-3000

Copper Base Alloys in Rod Form Engineering Manual FM-3010

METALS AND ALLOYS REVIEW



by FRANK M. LEVY

Vice-President and Director of Research

One of our most interesting series of alloys is the group which we market under the tradename "Tuf-Stuf a group of aluminum bronze alloys with range and flexibility to meet the most demanding needs. They are high copper base alloys containing from 9% to 13% aluminum and varying amounts of iron, nickel and manganese. Being free of zinc, they are not subject to dezincification. Tuf-Stuf alloys have a low coefficient of friction, good wearing qualities, high tensile strength, high hardness and the ability to withstand heavy pounding. Some of the alloys can be hardened by heat treatment. In the harder grades, these alloys are used for heavy duty service where high compressive loads are encountered and where lubrication may be scant. Present day increases in operating speed of modern machine equipment and the economy of little or no machine "down" time has made Tuf-Stuf popular in the machine tool industry. It is used in a multitude of applications where resistance to wear is important, such as: Drill Jigs, Feed Nuts, Rollers, Cams, Collets, Gibs, Gears, Boring Bar Guides, Lead Screw Nuts and Clutch Shifter Forks. Also, because of their ability to withstand higher stresses and resist season-cracking, these alloys are ideally suited for threaded nuts and bolts and pole-line hardware.

The unusual physical properties of the Tuf-Stuf series have made it particularly useful in the chemical and allied industries. These alloys combine the strength and ductility of medium steel with high resistance to corrosion by many chemicals. Tuf-Stuf alloys will not only resist oxidation at elevated temperatures, but will also retain a greater portion of their strength and hardness at these temperatures than will the copper zine alloys. These properties make them ideal in the aircraft industry for valve seat inserts, spark plug bushings, valve guides and propeller hub cones.

Tuf-Stuf alloys are supplied as forgings, rod or screw machine products. As forgings the grain structure can be controlled to produce parts that are strongest at points of greatest stress and strain. Relatively intricate shapes can be forged to closer tolerances than sand castings. Where appearance is a factor, a forging may easily prove more economical since a minimum amount of machining, buffing or polishing is required before finishing.

If you'd like more information about this series of alloys, drop me a line or better yet, send me your sample part or blueprint and an explanation of its use and we'll be glad to submit our recommendations.

MUELLER BRASS CO.

PORT HURON 46, MICHIGAN

178

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YARD CAR HANDLING?

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Glossary lists ready

The words industry uses aren't always defined by standard dictionaries as clearly or as accurately as they might be. So, industry has compiled a good many glossaries of its own, covering topics from atomic energy to packaging.

As mentioned a few months ago, we've been making a collection of these industrial dictionaries (both books and booklets), and have prepared a reference list of about 125 chemical, metallurgical, textile, electrical and engineering glossaries which are available to business executives.

We'll be glad to send a copy of the list, with our compliments, if you will write, enclosing a self-addressed envelope (standard business size).

Address: Industrial Editor, Dun's Review and Modern Industry, 99 Church Street, New York 8, N. Y.

stalled in at least one home out of every five; and the three-bedroom unit is now the most popular in all price classes.

The significance? For makers of home appliances, the utility room trend is especially important; for others, the acceptance of new materials (as in the windows), the opportunities and limitations in furnishing the three-bedroom home; and the reminder that changes are taking place—though they may be behind the scenes.

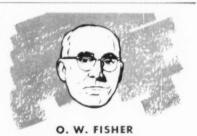
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Big type, and short, simple sentences proclaim that Forgeland U.S.A. was written for children. But this attractive booklet, prepared by the Eric Foundry Company to show youngsters what goes on in one of our vital industries, will be enjoyed by almost anyone. It's an idea other companies can adopt, too, to explain their industries to future workers and encourage pride in their work. Copies of the booklet are free from Eric.



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Where artisans once worked their creative magic in wood and glass and metals for the pleasure of a few, now their present day counterparts apply their skills to the field of plastics, and bring beauty and utility to millions.

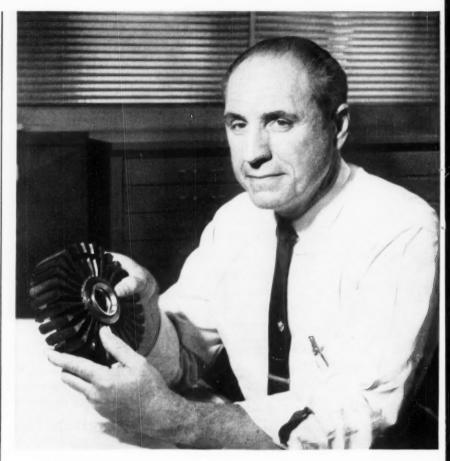
Pictured below are two of the many specialists who contribute to the plastic products serving every home and every industry. Monsanto, a major producer of quality plastics materials, salutes these modern craftsmen who are helping to mold America's tomorrow.

When your plans call for plastic parts or products, consult an expert custom molder



Rudy Zoske, Northwest Plastics, Inc., St. Paul, Minn. They call Rudy Zoske "a customer's man on our payroll" because of the high standards he sets as head of quality control at Northwest. His department of 12 inspectors, employing many testing machines and gauges designed and built by themselves, rove through the departments, work directly on the press line, or conduct continuous dimension checks, through all 3 shifts. Mr. Zoske makes it a practice to keep in close contact with customers about their product specifications. He also confers with the tool designers on job requirements and supervises production from a quality standpoint.

A firm advocate of quality control, Mr. Zoske reports: "Strict examination of the appliance and electronic parts we manufacture, for warpage, dimensional change, impact strength, or whatever qualities are vital to the customer, has held plant rejects to a minimum. That's why customers appreciate the quality of our molding work."



C. Kenneth Swartz, Consolidated Molded Products Corp., Scranton, Pa. Since joining Consolidated in 1924, Ken Swartz has participated in the designing of over 5000 compression, injection, and vacuum-type molds. Now manager of the Development Division, he supervises the design of tools for the intricate, close tolerance gears, switch components, terminal boards, and dial-face moldings that are Consolidated's main products. "Creating a mold today is no overnight job," Mr. Swartz points out. "Not when a single tool may require as much as 200 man-hours of design time." Nevertheless, his 5 senior tool designers develop about 155 new tools every year, some valued up to \$20,000.

Mr. Swartz has served on the Mold Design and Recommended Steels Committee of the Editorial Board of the Plastics Industry Engineering Handbook since 1953. In tool designing his firsts include basic patents for applying a crackle finish to a steel mold (1954) and a patent on molding hollow articles with a special core motion.

MONSANTO CHEMICAL COMPANY
PLASTICS DIVISION, SPRINGFIELD 2, MASS.



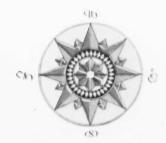
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The Trend of BUSINESS

AND Compass Points_

- ▶ Production Dips
- ▶ Spending Expands
- ▶ Construction Up
- Prices Stable
- ▶ Boom at Retail
- Dutlook Bright



CONFLICTING developments in business became more clearly evident in July. Sliding downward from the near-record Spring level, total industrial output dropped in July, partly because of the usual vacation shutdowns at some factories, and partly as a result of the steel strike. While steel output dropped from 93 per cent of capacity in June to 12 per cent of capacity in the third week of July, production in such important industries as machinery, freight car manufacturing, food, chemicals, and petroleum, was sustained at, or near, peak levels.

The loss of iron and steel output and related curtailments at the iron ore and coal mines reduced the over-all level of industrial production in early July by about 4 per cent, according to estimates from the Federal Reserve Board. This was hardly an impact of worrisome proportions and the opinion was frequently expressed among steel industry observers that steel inventories were sufficiently large that most steel users could sustain their high rates of production for 30 days without any difficulty.

It appeared from a survey by the magazine *Steel*, that a strike of less than 30 days would affect about 15 per cent of the steel users, 35 per cent in a strike of 30-45 days duration, and 55 per cent of the users in a strike lasting 45-60 days. More than one-third of the steel consumers said that they still would not be hurt by a strike lasting two or three months. But the important construction and freight car manufacturing industries hoped for an early settlement; plate and structural steel became harder to buy before the strike was three weeks old.

Output increases scheduled

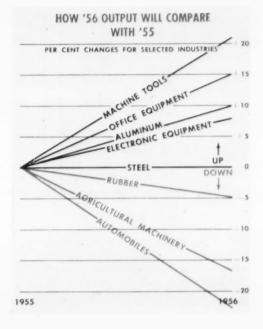
While no appraisal of the full impact of the steel-wage negotiations was possible at the time, the outlook for the second half of 1956 appeared bright in a mid-year survey of the major industries conducted by the Commerce Department.

Soft spots were evident in agricultural machinery and equipment, automobiles, rubber, and some household appliances, where 1956 output is expected to fall short of that in 1955. But for the majority of industries, production is expected to exceed last years' (chart on this page). Notwithstanding the decline in home building, the outlook in construction is for another recordbreaking year.

Building at all-time high

Contract awards for future construction in June were 3 per cent below a year ago, the first year-to-year decline in nine months, according to reports from the F. W. Dodge Corporation.

Based on the results of a mid-year survey of major industries, the Commerce Department reported the general outlook for the last half of 1956 is favorable, although there are scattered soft spots.



But the cumulative total of awards for the first six months of 1956 was at an all-time high, guaranteeing an extraordinarily high volume of construction for the rest of the year, given a reasonably prompt settlement of the steel strike.

The actual volume of construction put in place rose seasonally in June, boosting construction activity for the first half of the year to an all-time high of \$20 billion, 2 per cent above that in the first half of 1955. After allowance for seasonal variations, construction volume in the first half of this year was at an annual rate of nearly \$44 billion. This compares with \$43 billion worth of new building put in place in 1955. It is expected that total outlays for new construction will hit \$44.5 billion; this implies a slight rise from current rates in the second half of the year. Coupled with the expenditures for additions and alterations, 1956 construction volume may reach \$60 billion.

While the volume of additions and alterations to existing homes in the first half of this year was I per cent above the comparable 1955 level, the dollar volume of new residential construction was down 8 per cent. The rate of decline in dollar volume was smaller than the decrease in the number of units (down 18 per cent), reflecting the trend toward larger homes.

Contractors non-completions rose somewhat in recent months, according to some experts in the construction industry. This required the bonding company to supervise and finance the remainder of the uncompleted work, where performance and payment bonds had been secured. Under-estimation of costs, under-capitalization, and top-heavy salary withdrawals by partners were believed responsible for the rise in non-completions.

Peak in apparel sales

Retail sales of apparel were at peak levels in the first half of 1956, comfortably ahead of the

39 COMPASS POINTS OF BUSINESS

	CE!	VSUS-
	More p	eople, but
	fewer b	usinesses
	POPULA- TION	NAMES IN REFERENCE BOOK Thousands
'56 (H	167.6 167.0	2,639 2,643
'55 IV III II	166.3 165.5 164.8 164.2	2,652 2,654 2,640 2,644
1955 1954 1953	165.2 162.4 159.7	2,640 2,639 2,673
1952 1951	157.0 154.4 151.7	2,643 2,614
1950 1949 1948	149.2 146.6	2,692 2,684 2,555
1947 1946 1939	144.4 141.3 130.9	2,410 2,146 2,116
1932 1929	124.8 121.8	2,077
1919 1914	105,1 99,1	1,711 1,655

		r peak, 96° ers holding	
3 EMPLOYMENT Civilian	4 EMPLOY- MENT Agricultural	5 EMPLOY- MENT Nonagricultural	UNEMPLOY MENT
Millioni	Millioni	Millions	Millions
65.2 62.9	7.1 5.6	58.1 57.3	2.7
64.7	6.9	57.8	2.3
65.1	7.7	57.4	2.3
62.8	7.0	55.8	2.7
60.2	5.4	54.9	3.3
63.2	6.7	56.5	2.6
61.2	6.5	54.7	3.2
61.9	6.5	55.4	1.5
61.3	6.8	54.5	1.7
61.0	7.1	54.0	1.9
60.0	7.5	52.5	3.1
58.7	8.0	50.7	3.4
59.4	8.0	51.4	2.1
58.0	8.3	49.8	2.1
55.2	8.3	46.9	2.3
45.8	9.3	35.6	9.5
38.9	9.7	28.0	12.1
47.6	10.0	36.3	1.5
42.0	10.5	31.5	
37.6	11.4	26.2	

April's p	peak; othe	er prices o	advanced
7 CONSUMERS' PRICES 1947-1949=100 Index	RETAIL PRICES 1935-1939=100 index	9 WHOLESALE PRICES 1947-1949=100 Index	INDUSTRIAL STOCK PRICE AVERAGES Dollars
115.3 114.6	209.0 207.8	114.0 112.4	491.19 484.31
114.9	208.3	114.4	471.25
114.7	208.5	111.0	465.30
114.2	207.7	110.2	428.39
114.3	207.4	110.2	405.86
114.5	208.0	110.7	442.70
114.8	208.6	110.2	333.91
114.4	209.1	110.1	275.96
113.5	210.4	111.6	270.76
111.0	206.8	114.8	257.64
102.8	189.0	103.1	216.31
101.8	187.7	99.2	179.48
102.8	192.7	104.4	179.95
95.5	180.1	96.4	177.58
83.4	155.2	78.7	191.65
59.4	99.0	50.1	142.66
58.4		42.8	64.57
73.3	120.9	61.9	311.24
74.0		88.1	99.78
42.9		43.3	81.03

			SA	LES-		
	,				omestic sa	
	above	a year ag	o, farm re	ceipts low	er than a	year ago
	FARM RECEIPTS	22 EXPORTS	23 IMPORTS	24 RETAIL SALES	25 WHOLESALE SALES	26 MANUFACTUE ING SALES
	Billion 3	Million 8	Million \$	Million \$	Million \$	Million 8
(11	29.7*	4,904	3,180	47,817	31,800	83,074
56	29.6	4,205	3,221	43,416	29,130	81,404
IV	28.9●	4,102	3,089	50,986	31,280	82,099
111	28.7●	3,774	2,789	46,925	30,930	79,651
55 H	29.9	3,887	2,776	46,824	28,570	80,015
1	29.5	3,741	2,739	40,745	26,840	75,221
1955	29.5	15,504	11,393	185,480	117,620	316,986
1954	30.0	15,059	10,205	170,664	109,291	287,707
1953	31.4	15,698	10,875	170,742	111,990	303,356
1952	32.8	15,177	10,714	164,085	112,325	276,548
1951	33.2	15,030	10,967	158,223	113,168	266,460
1950 -	28.7	10,275	8,852	143,689†	103,896	231,415
1949	28.1	12,051	6,622	130,721	88,252	196,997
1948	30.5	12,653	7,124	130,521	95,172	211,560
1947	30.0	14,430	5,756	119,604	87,263	191,010
1946	25.5	9,738	4,942	102,488	71,915	151,402
1939	8.6	3,177	2,318	41,042	26,244†	61,340
1932	4.7	1,611	1,323	25,013		30,774
1929	11.3	5,241	4,399	48,459	37,814	70,262
1919	14.5	7,920	3,904	36,549		60,509
1914	6.0	2,114	1,789			

usually bal	anced with	a year ago, record sales
27 RETAIL INVENTORIES	28 WHOLESALE INVENTORIES	29 MANUFACTURING INVENTORIES
Million \$	Million \$	Million \$
24,500 24,540	12,500 12,620	49,000 47,674
22,440	12,290	46,085
23,300	12,180	44,266
22,840	11,520	43,976
23,520	11,620	43,483
22,440	12,290	46,085
22,090	11,562	44,017
21,208	11,695	46,947
20,234	11,310	44,442
19,904	11,068	43,123
18,699§	10,474	34,534§
14,570	7,9138	29,038
15,190	7,982	31,782
13,372	7,613	29,032
11,231	6,606	24,620
5,285	3,075†	11,516
,	2,307	7,332
7,298	4,024	12,775
	4	12,096

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a record of business activity

	INCOM	E
Notwithstan	ding the cutback	ks in auto production,
per capita	spending power	er hit another peak

WEEKLY HOURS Indust. Workers Hours	WEEKLY EARNINGS Indust, Workers Dollars	DISPOSABLE PERSONAL INCOME Billion \$	DISPOSABLE INCOME Per Capita 1955 Dollars	CORPORATE PROFITS AFTER TAXES Billion \$
40.1	78.60	283.5°	1,675°	22.3*
40.5	78.50	280.2●	1,673	21.6
41.2	79.24	278.4	1,674	23.0
40.6	76.80	273.8	1.654	21.5
40.6	76.79	268.5	1,629	20.3
40.4	74.61	260.6	1,587	19.7●
40.7	76.61	270.6	1,638	21.1
39.7	71.65	254.4	1,562	16.4
40.5	71.69	250.2	1,568	16.7
40.7	67.97	236.7	1,522	16.1
40.7	64.77	226.1	1,512	18.7
40.5	59.33	206.1	1,513	22.1
39.2	54.92	188.2	1,418	15.8
40.1	54.14	187.6	1,424	20.3
40.4	49.97	169.0	1,406	18.2
40.4	43.82	159.2	1,548	13.4
37.7	23.86	70.4	1,037	5.0
38.3	17.05†	48.7	765	-3.4
44.2	25.03	83.1 §	1,066§	8.3 §
46.3	22.08	63.5	935	5.7
49.4	11.01	33.2	893	1.9

	P	RODUCTIO	ON	
New reco	rd for GNI	: plant an	nd equipmen	t outlays
to rec	ich \$9.2 b	illion in t	he third que	arter
16 INDUSTRIAL	17 FLECTRIC	18 BUILDING	19 EXPENDITURES	20 GROSS

16 INDUSTRIAL PRODUCTION (PHYSICAL) Index	ELECTRIC POWER PRODUCTION Billions kuch	BUILDING PERMITS 120 Cities Million \$	EXPENDITURES FOR PLANT & EQUIPMENT Billion \$	GROSS NATIONAL PRODUCT Billion \$
142"	168.0	1,296	9.1	408.5°
142*	170.1	757	7.5	403.4
144*	166.3	993	8.4	401.9
140*	161.7	1.191	7.4	396.8●
138*	149.0	1,309	7.0	387.4
133*	147.8	1,708	5.8	377.3●
139	624.8	4,571	28.7	390.9
125	544.6	4,143	26.8	360.7
134	516.5	4,034	28.3	363.2
124	463.1	3,523	26.5	345.2
120	432.3	3,654	25.6	328.2
112	388.7	4,466	20.6	285.1
97	345.6	3,131	19.3	257.3
104	336.8	3,111	22.1	257.3
100	307.4	2,470	20.6	232.2
90	269.6	2,089	14.8	209.2
58	161.3	1,029	5.5	91.1
31	99.4	336	2.6	58.5
59	116.7	2,490	9.2	104.48
39		1,181		77.9
33		735		38.5

FEDE	RAL -
Income still	surpassing
outgo; debt	is reduced

	BI
/	
24,572 15,623 276	0
	.3
28,979 16,178 280	.8
15,117 16,947 277	.5
22,339 17,337 274	4
21,876 15,667 274	.0
88,311 66,129 280	.8
70,216 64,851 274	.4
65,218 74,607 266	.1
62,129 66,145 259	.1
48,142 44,663 255	.2
37,045 40,167 257	.4
38,246 40,057 252	.8
42,211 33,791 252	.3
40,043 39,289 258	.3
40,027 60,703 269	.4
5,1031 8,9661 40	.4
7,1054 0,2004 40	5
2,006 4,535 19	
-14	
2,006 4,535 19	.9

FINANCE-	
Boost in interest rates didn't hamper	borrowing
noticeably; loans at peak level but so	are assets

33 CONSUMER CREDIT Outstanding Billion \$	LOANS OF COMMERCIAL BANKS Billion \$	CURRENCY OUTSIDE OF BANKS Million \$	36 DEMAND DEPOSITS ADJUSTED Million \$	1NTEREST ON BUSINESS LOANS Per cent
36.9	85.5	27,200	106,500	4.10
35.5	84.7	27,200	104,400	3.93
36.2	82.8	27,900	109,914	3.93
34.3	78.4	27,200	104,900	3,77
32.5	75.4	27,375	103,234	3.56
29.9	72.3	26,700	102,400	3.54
36.2	82.8	27,900	109,700	3.70
28.5	70.6	27,400	106,900	3.55
28.9	67.6	28,091	103,300	3.69
25.8	64.2	27,494	101,500	3.50
21.5	57.7	26,315	98,234	3.10
20.8	52.2	25,398	92,272	2.70
17.1	43.0	25,415	85,570	2.70
14.4	42.5	26,079	85,520	2.50
11.6	38.1	26,476	87,121	2.10
8.4	31.1	26,730	83,314	2.10
7.2	17.2	6,401	29,793	2.10
3.6	21.8	4,669	15,728	4.71
6.4	35.7	3,557	22,809	5.83
	22.4	3,593	17,624	6.58
	13.2	1.533	10.082	

-FAILURES-Toll up among auto dealers

38 BUSINESS AILURES	LIABILITIES OF FAILURE
Number	Million \$
3,254	114.8
3,242	134.7
2,772	119.2
2,571	101.7
2,772	107.3
2,854	121.1
10,969	449.3
11,086	462.6
8,862	394.2
7,611	283.3
8,058	259.4
9,162	248.3
9,246	308.1
3,252	234.6
3,476	204.6
1,130	67.3
14,768	182.5
31,822	928.3
22,909	483.3
6,451	113.3
18,280	357.9

	11	ì	
	1		56
	IV	1	
	111		
	11		5
	1		
	195	5	
	195	1	
	195	3	
	195	2	
	195	1	
	195	().	
	194	9	
	194	8	
	194		
	194	6	1
	193	9	
	193	2	
	192	9	
	191	9	
	191	4	

 ε Exchange Commission — 20, Gross National Product; U,S. Office of Business Economics.

SALES 21. FARM INCOME: U. S. Bureau of Agricultural Economics—22. Exports, 23. Imports; U. S. Bureau of the Census—24. Retail Sales, 25. Wholesale Sales, 26. Manufacturing Sales; U. S. Office of Business Economics.

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FAILURES 38. Business Failures, 39 Liabilities of Failures: Dun & Braditreet, Inc.

Footnotes

Eggires for this and prior dates are from another source and age not strictly comparable with later data.

Beginning in 1937 tax refunds are deducted from receipts and are not included among expenditures.

Annual rate seasonally adjusted.

Guartedy figures essonally adjusted.

Iseries revised from this date.

First quarter figures for most series are based upon preliminary estimates and incomplete data.

Regional Highlights...

- Spot reports from New England resort areas in early July reflected a record influx of vacationers; tourist trade was generally above a year ago.
- Although new business incorporations in the United States were at an alltime high in the first half of 1956, the gains from a year ago were not shared by all regions. Incorporations were fewer than last year in the West North Central, Mountain, and Pacific areas.
- While net farm income in the Southern agricultural states remained well below a year ago in the first half of 1956, given good crop weather, neither debt repayment nor retail sales in the area are expected to be seriously impaired.

The continued increase in outmigration to metropolitan areas from the St. Louis Federal Reserve District reflects the reduction in farm jobs.

• Failures in June were fewer than a year ago in just two regions: the New England and the Mountain states. Gains from a year ago ranged from 7 per cent in the Middle Atlantic area to 88 per cent in the East South Central.

comparable figures for 1955. In June, clothing stores sold about 12 per cent more than a year ago and the high volume was sustained in early July. Summer dresses and both men's and women's sportswear were snapped up so much faster than many retailers had expected that stocks were frequently thin and clearance sales less numerous than in some preceding years.

Retailers as a whole sold about 5 per cent more than a year ago in the first three weeks of July, according to spot reports from Dun & Bran-STREET offices in 66 cities scattered across the country. Regionally, the increases from a year ago ranged from about 3' per cent in the Northwest, to 6 per cent in New England and the Eastern states,

The retail sales tally for the first two quarpage 24. The rate of gain in retail inventories over the past year outstripped that in sales, turnover in automobiles.

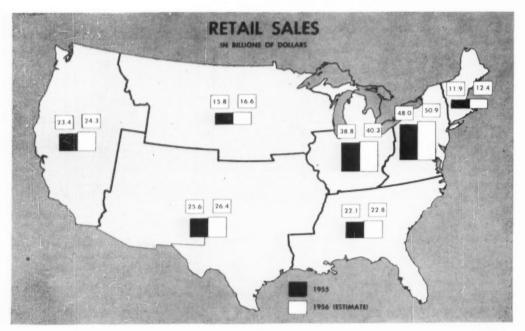
Retail sales of household furnishings and appliances continued to increase in June and early July. The dollar volume at furniture and appliance stores in June was about 6 per cent higher than a year ago; the gain in unit volume was probably even greater, because the prices for home furnishings this year were slightly lower than they were a year ago.

ters of 1956 is reflected in Compass Point 24 on partly because of the comparatively sluggish

New car sales perked up in June, surpassing

600,000 compared with 575,000 in May. Dealers

Retail sales for the country as a whole were about 4 per cent above a year ago in the first half of 1956; regional gains ranged from about 3 per cent in the South and Southwest to 6 per cent in the East. The estimates below for 1956 are based on a continuation of the first half's rate of gain; if they prove correct, retail sales this year will be close to \$194 billion, the highest in bistory (see Compass Point 24, page 24).



stocks of new cars dropped 16 per cent to 664,000 on July 1. While the over-all reduction was the largest since September, some individual dealers found themselves with more new cars on hand on July 1 than on June 1. Volume in used cars was as high as last year, helping to salvage car dealers' profit margins.

The increase in population (Compass Point 1, page 24), helped to stimulate consumers' purchases of food. Retailers of food consistently sold more than a year ago in each of the first six months of 1956; June volume was about 13 per cent higher than in 1955. The supermarkets continued to account for about 60 per cent of grocery volume.

Credit mounts

Consumers made increasing use of credit facilities in May and June; the principal gains in consumer credit outstanding continued to be in automobile installment paper. At the end of May, consumers were indebted for their automobiles to the tune of almost \$15 billion, nearly \$3 billion more than a year ago.

Total consumer credit outstanding, including both installment and non-installment debt amounted to \$36.6 billion, a new peak. We estimate that credit volume rose further in June, although perhaps at a less rapid rate than from April to May (Compass Point 33, page 25). Repayments of consumer debt, both long and shortterm, remained very high.

Early in 1956, nearly two-thirds of all spending units had some debt, according to the Federal Reserve Board's annual survey of consumer finances. About one-sixth of the spending units had both mortgage and consumer debt, while 40 per cent had only consumer debt and 10 per cent only mortgage debt.

Income higher

Personal income in the first half of 1956 was about 7 per cent higher than a year ago, reach ing an annual rate of more than \$325 billion. After allowance for tax payments and price changes, individual buying power was at an alltime high (Compass Point 14).

Largely reflecting the advance in retail sales volume, proprietors income increased in the second quarter of 1956 at a more advanced rate than in previous months. Wage and salary disbursements continued to edge upward, surpassing last year's level by a comfortable margin.

Rise at farm and factory

Agricultural income recovered somewhat from the reduced levels in March and April. For the first half of 1956, farmers' net income was at an annual rate of about \$11.6 billion, roughly the same as in the comparable period of 1955. An increase in the volume of marketings tended to offset a dip in the average prices for farm products.

Continued on page 28

Take a look at these

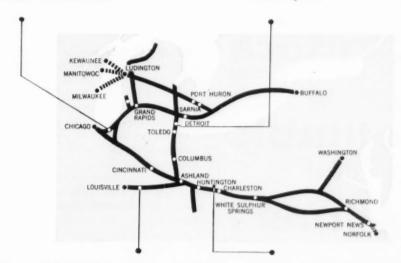
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The Experts Say ...

The CURRENT YEAR promises to be the biggest in history in terms of production, employment and earnings, and this prosperity should earry over into 1957.—Emerson P. Schmidt, Director, Economic Research Dept., U.S. Chamber of Commerce

The **FARM OUTLOOK** for the second, third, and fourth quarters of 1956 indicates some improvement over the final quarter of 1955 and the first quarter of 1956... However, it is not likely that the long-term price outlook in agriculture will be very healthy so long as total farm production exceeds consumption.—Matt Triggs, Legislative Co-ordinator, American Farm Bureau Federation

Record **HOME LAUNDRY APPLIANCE** sales of 6.2 million will furnish a strong platform for the entire consumer goods business level this year; sales will be 8 per cent higher than in 1955, 48 per cent ahead of 1953, and triple those of 1946.—Judson S. Sayre, president, Norge Division, Borg-Warner Corp.

The farmers' production expenses were about the same as last year. Lower prices for feed, seed, and feeder livestock were counter-balanced by higher property taxes, wage rates, and interest payments. The current volume of farm receipts is compared with that in the past in Compass Point 21.

The average factory workers' weekly pay was sustained at a record level in the second quarter of 1956, even though the cutbacks in automobile production tended to reduce the average number of hours worked. Upward pressure on the hourly wage rates continued (Compass Points 11 and 12).

Employment soars

The hiring of a record number of young Summer workers boosted civilian employment to a new all-time high in June. Approaching 67 million, the employed were about 4 per cent more numerous than a year ago. The number of young people seeking Summer, or post-graduation jobs, apparently exceeded the number of opportunities somewhat, with the result that unemployment expanded, too.

Numbering almost 3 million, the jobless were about 9 per cent more numerous than a year ago. The increase in unemployment was almost entirely in the 14 to 24 age group. More than half of the unemployed (57 per cent) had been jobless for less than four weeks. Unemploy-

ment among married men with families decreased to about 700,000 in June. This represented about 2 per cent of the family men in the labor force. The current buoyancy in employment as compared with past years is reflected in the Compass Points 3-6.

Prices stable

While the wholesale prices for raw industrial commodities appeared to be levelling off in mid-July, the prices for foodstuffs continued to advance slightly. The Bureau of Labor Statistics' spot index for 22 sensitive commodities on July 17 was about the same as it was a month earlier, but almost 3 per cent lower than a year ago. The more comprehensive index, covering several hundred commodities, was rather steady in July at a level about 14 per cent above the 1947-1949 average (Gompass Point 9).

The cost of living inched upward this Spring, chiefly reflecting the sharpest advance in food prices in about three years. The prices both for restaurant meals and food purchased in stores increased.

An advance in the prices for used cars was offset by a dip in the prices for new cars. Housing, transportation, and medical care cost more, while the prices for apparel and recreation were high and steady.

The Consumer's Price Index for May was at 115.4 (1947-1949—100), the same as at the all-time peak in



When failure liabilities drop and the other seven series rise, an expansion in business usually follows. Chosen by the National Bureau of Economic Research, these eight series tend to foretell changes in the general husiness level.

October, 1953, and slightly above last year (see Compass Point 7).

Budget balanced

Hopes for a tax reduction were quashed when the Treasury Department made its official report in mid-July on its income and outgo for the fiscal year 1956, ended on June 30. While there was a small surplus for the first time since 1951, it was not considered sufficiently large by Congressional leaders to justify a reduction in taxes. The Federal revenue amounted to \$68.1 billion in fiscal 1956, while expenditures were \$66.4 billion. For fiscal 1957, budget receipts are expected to total \$66.3 billion, while expenditures of \$65.9 billion are planned.

Outlook bright

Although adjustments appeared likely to continue in some industries, it was expected by the majority of business leaders that over-all business activity would be sustained at unusually high levels for the remainder of 1956.

The unprecedented volume of consumer buying, construction expenditures, and investment in new plant and equipment appear unlikely to lose momentum. While

there have been some cutbacks and layoffs in farm equipment manufacturing, the industry expects some recovery in the second half of 1956. Sales of such diverse products as toys, heavy power equipment, furniture, and glass are heading for new all-time peaks. While automobile output is unlikely to regain the losses experienced in the first half of the year, 1956 will still be at least the fourth largest automobile production year in history.

A new record of \$28.5 billion was forecast for foreign trade in 1956 by the National Foreign Trade Council. Barring any drastic change in the world political situation, both imports and exports are due to exceed any previous levels (Compass Points 22 and 23). The gross output of goods and services should move even farther above the \$400-billion mark in the months ahead (Compass Point 20).

A number of Government economists thought that the gross national product might rise again in the third and fourth quarters of 1956, in spite of the steel strike, a noticeably more optimistic appraisal than in past months.

This is a Business Conditions Staff Report, prepared by H. Lorraine Carson, Business Conditions Editor



ucts and to develop new ones.

Among the notable products recently introduced by Borg-Warner are a new-type clutch for heavy-duty machines; Cycolac®, a remarkable new plastic of many uses; a new cement-type building material lighter in weight and with better insulating qualities than concrete or brick; an advanced automotive oil cooler; new pumping equipment for handling liquid oxygen; new pumps for nuclear reactor operations; new gas-fired home heating equipment; new electro-hydraulic servo valves for control systems of aircraft and guided missiles; new axial flow blowers specially designed for aircraft, industrial and mobile applications; and many others.

In addition, special B-W research groups are currently engaged in the development and testing of such important projects as a new type automatic transmission for heavy-duty trucks; a sonic oil well drill; power gear shifting units for off-the-road earth-moving equipment.

In these and other fields Borg-Warner is expanding for the future, applying its special skills and broad experience in research, engineering, production and management to continue benefiting almost every American every day.



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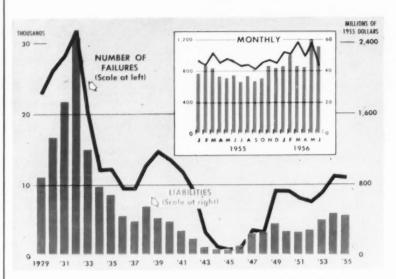
FROM B&O RAILROAD

STUDY *

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Business Failures



After correction for changes in value of the dollar, failure liabilities are considerably lower than pre-war, although well above levels of most postwar years. Failures are about one-third as numerous as in the early 1930's.

BUSINESS failures dipped 5 per cent to 1,105 in June, following a normal seasonal downtrend. However, as in the previous five months of this year, a post-war record was established; the toll mounted 21 per cent above a year ago to reach the highest level for any June since 1940.

The rate of failure edged up to 49.2 for each 10,000 business listed in the Dun & Bradstreet Reference Book, according to Dun's Failure Index. The index extends monthly mortality to an annual basis and adjusts for seasonal fluctuations. Exceeding any other month since May 1942, this rate compared with 41 failures for each 10,000 enterprises last year, but it was considerably less severe than the pre-war rate of 64 in 1940.

Liabilities involved in the June

casualties fell 28 per cent to \$43 million. While this volume was exceeded in February and May of this year, it was larger than any month of 1955. Failures with liabilities of \$100,000 or more were considerably less numerous than the preceding month. Failures in the other size groups were fewer than in May, except for the \$25,000 to \$100,000 liability class, which reached a new peak.

Construction casualties resumed their upward trend, reaching a new record in June. More contractors of all types failed than in May, but the toll climbed most sharply among general builders. Mild dips from the previous month prevailed in trade and service lines, while a sharper decline brought the manufacturing toll to the lowest level since last October. Several industries, includ-

FAILURES BY DIVISIONS OF INDUSTRY

		L. VII	URES	IV LAIVI	SIONS OF INDUSTRY				
Current liabilities in millions of dollars)	Number 6 Months		Liabilities 6 Months		(Current liabilities in millions of dollars)		nber onths	Liabilities 6 Months	
MINISIG, MANUFACTURING Mining Coal, Ohl, Misc. Food and Kindred Products. Textile Products. Apparel Lumber, Lumber Products Paper, Printing, Publishing Chemicals, Allied Products. Leather, Leather Products. Stone, Clay, Glass Products. Iron, Steel and Products. Machinery. Transportation Equipment Miscellaneous	18 104 320 207 55 31 53 20 70 151 30	1130 33 87 250 163 53 26 43 26 71 150 24 204	\$104.0 3.9 6.4 21.5 13.2 2.4 11.0 3.3 2.5 6.5 18.4 2.6 12.3	\$88.1 2.8 7.8 12.5 7.1 2.4 2.4 1.3 8.7 23.0 2.4 15.4	RETAIL TRADE FOOD and Liquor Ceneral Merchandise Apparel and Accessories. Furniture, Furnishings Lumber, Bidg, Mats., Hower Automotive Group. Eating, Drinking Places Drug Stores Miscellaneous CONVERCETION General Bidg, Contractors Building Subcontractors	528 138 630 406 187 366 560 80 312 865 332 483	539 95 463 427 160 252 504 70 307 649 209 404	6.1 12.5 13.3 6.2 12.7 11.6 2.0 6.3 47.6 25.1 20.0	9.1 3.6 8.5 12.2 4.4 5.7 11.1 1.6 5.6 37.2 20.4 14.8
WHOLESALE TRADE Food and Farm Products. Apparel. Dry Goods Lumber, Bldg. Mats., Hdwee Chemicals and Drugs. Motor Vehicles, Equipment. Miscellaneous.	33 23 86 21 34	596 142 32 23 67 17 36 279	32.0 5.6 1.7 0.7 5.5 0.5 1.3 16.7	23.7 6.4 1.1 0.8 3.7 0.5 0.8 10.4	Other Contractors	514 6496 the no	5626	279.5	



RONSON Whirlwind—Retractable windshield, swivel base. Satin and brightchromefinish. \$8.95 retailvalue.



RONSON Windlite—15% more wind-resistant than other leading "windproofs"! \$3.95 retail value.



RONSON Regal—Table lighter with modern, sweeping lines in brilliant chrome plate. \$10.00 retail value.



New! LADY RONSON Electric Shaver! The glamour-gift of the year! Fabulous fashion colors, with a make-believe diamond. With gift-case, \$14.95 retail value.



All-new RONSON "66" with Super Trim! Has the thinnest shaving head... to give the closest shaves ever! And new Super Trim gets the long hairs. In plastic case, \$23.50 retail value, In leather case, \$25.00 retail value. Trip Kit, \$28.50 retail value, F.T.I.



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Company

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*Retail value



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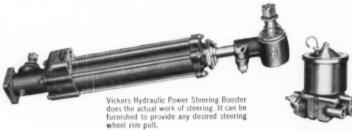
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ing food, textiles-apparel, and lumber-furniture, had the fewest casualties so far this year. And, there was a moderate decrease among machinery manufacturers. In contrast, the industry had the most failures since March 1955.

In all functions except manufacturing, mortality exceeded the 1955 level. Some 24 per cent more retail and service businesses failed than a year ago, while wholesale and construction casualties ranged 40 per cent higher. Most retail lines had considerably more failures than in the previous June; the only dip occurred in furniture stores.

The upturn in service failures from last year centered in the business and repair lines. The construction increase came primarily from general builders.

Geographical trends between May and June were mixed, with five regions reporting declines and four reporting increases. Furthermore, most of these changes were notably sharp. Three areas had the lowest tolls so far this year: the Middle Atlantic, West South Central, and Mountain States. Of the regions with upturns, the East South Central States had the most casualties

to date in 1956, the East North Central had the most since early 1949. All of the June decline occurred in the 25 largest cities; the balance of the country reported a 3 per cent increase in May.

THE FAILURE RECORD

	June 1956	May 1956	June P.C. 1955 Chg.†
Dus's Fairure Innex* Unadjusted Adjusted, seasonally	48.7 49.2	51.3 48.9	40.2 +21 40.6 +21
NUMBER OF FAILURES.	1105	1164	914 +21
NUMBER BY SIZE OF DE	KT.		
Under \$5,000	193	194	170 + 14
\$5,000-\$25,000	505	579	420 + 20
\$25,000-\$100,000	322	278	241 + 34
\$100,000 and over	85	113	83 + 2
NUMBER BY INDUSTRY C	Bours		
Manufacturing	183	245	200 - 0
Wholesale Trade	115	118	79 +46
Retail Trade	551	575	446 + 24
Construction	163	132	114 +43
Commercial Service	93	94	75 +24

Torse 43,293 60,334 37,171 +16

*Apparent annual failures per 10,000 listed enter prises, formerly called Dex's Issocyency Innex, †Per cent change, June 1956 from June 1955.

Business Factures include those businesses that ceased operations following assignment or bankrupers ceased with loss to creditions after used actions as extended to foreclosure, or attachment; voluntarily withdred leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily comprounted with creditions on the court.

CURREST LANDITIES, as used in The Failure Record, have a special meaning; they include all accounts and notes passible and all obligations, whether in security form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the Government. They do not include long term, publicly held obligations. Offsetting assets are not taken into account.

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... "one coat" protection for all around the plant

Don't let moisture, fumes, smoke and weather attack your property and equipment. Protect your metal and masonry ... your insulating materials ... with one coat of Flintkote Hydralt.

Yes, even one coat of Hydralt gives thick film, more economical protection against corrosion, rust and the effects of moisture infiltration than 8 or 10 coats of paint. And think of the time savings, too.

Hydralt Protective Coatings are unique (clay-type) asphalt emulsions. Films about 3/64" thickness have provided completely satisfactory resistance to weather in industrial atmosphere for over 24 years.

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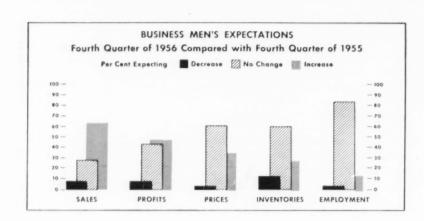
In Toronto, Ont.: The Flintkote Company of Canada, Ltd.

In London, England: Industrial Asphalts Company, Ltd.

BUSINESS MEN'S EXPECTATIONS

1956 SALES: \$657 BILLION?

That business sales—manufacturers', wholesalers', and retailers'—might top \$657 billion this year seemed distinctly possible. This would bring total volume roughly 6 per cent above that in 1955. The bases for the guess are the performance of business so far this year and the fourth quarter expectations of more than 1,500 representative business executives interviewed recently by trained Dun & Bradstreet reporters.



IGHER SALES than a year ago are expected for the fourth quarter of 1956 by almost two-thirds of the executives interviewed in the latest Dun & Bradstreet survey of business men's expectations. If the expectations become fact, it will wind up a banner year. Manufacturing and trade sales averaged 6 per cent above a year ago in the first half of 1956—if this rate is maintained in the second half, total volume for the year may be in the neighborhood of \$657 billion, the highest ever.

• The survey interviews were conducted just prior to the re-opening of the labor contract negotiations in the steel industry and no attempt was made to assay the impact or duration of a steel strike, although the executives were undoubtedly aware of the possibilities of a disruption in steel output. While there was no attempt to make a firm forecast for iron and steel output for the second half of 1956, a mid-year report released by the Department of Commerce esti-

mated that in the second half of 1956, steel production will probably average about 85 per cent of capacity, compared with 99 per cent in the first half. This would mean a production of ingots about equal to the 1955 record of 117 million tons (take a look at the chart on page 23).

As in previous expectation surveys, the manufacturing executives were noticeably more optimistic than those in trade. Retailers expected a year-to-year gain in their fourth quarter sales somewhat less frequently than the other business men and "no change" a bit more frequently. Lower sales than a year ago were expected by only 6 per cent of the wholesalers, 7 per cent of the manufacturers of nondurable goods, 8 per cent of the durables manufacturers, and 9 per cent of the retailers.

That their net profits in the fourth quarter of 1956 would equal, or exceed the comparable 1955 volume was expected by 92 per cent of the executives. Again retailers, pressed with stiff

competition and rising costs, expected higher profits less often and lower profits more often than executives in other lines. The anticipation of higher profits than a year ago by almost half of the executives and no change by 43 per cent may imply a slight increase over current profit levels. Corporate profits in the fourth quarter of 1955 were at the highest rate in history, but dipped to the second highest level in the early months of 1956.

While the executives planning an increase over a year ago in their fourth quarter inventories were more than twice as numerous as those planning a decrease, the weight was on the side of stability, with 60 per cent expecting no change in their inventories.

The maintenance of high price levels seemed likely, with twelve times as many executives expecting that their selling prices might exceed a year ago as thought there might be a decrease.

The maintenance of high-level employment in the fourth quarter of 1956 seemed assured—83 per cent of the executives expected at least as many people on their payrolls as a year ago, while those expecting to need additional workers were almost five times more numerous than those who expected layoffs.

Although they expected an increase in shipments about as frequently as the manufacturers of durable goods, the manufacturers of nondurables were slightly more optimistic about their prospective new order volume, with 58 per cent expecting an increase in orders, compared with 54 per cent of durables manufacturers.

THE FOURTH QUARTER OUTLOOK A Comparison of 1956 with 1955

			Per	cen	tage I	Breakdown	of Opin	ions Ex	pressed				
	Tocrease	CONCE	RNS-	250	MA	NUFACTU e Unchanged	RERS \	Increase	HOLESAL Unchanged	ERS Decrease	Increase	RETAILE!	RS————————————————————————————————————
SALES	64					25					56	35	9
PROFITS	49	43	8		52	41	7	46	45	9	42	45	13
PRICES	36	61	3		35	62	3	40	56	4	33	65	2
INVENTORIES	5 28	60	12		30	59	11	28	61	11	24	61	5
EMPLOYMEN	T 14	83	3	-	20	76	4	7	90	3	7	90	13
NEW ORDERS	S -	-			56	38	6	-		_	-	-	



Sohio's Clyde T. Foster tells how co-operative chemical and petroleum research means...

more miles for motorists

"The chemical industry has made remarkable progress during the past 25 years," states Clyde T. Foster, Sohio's president.

"And motorists have benefited greatly from this golden age in chemistry. The development of anti-knock compounds, new higher octane gasolines, de-icers, detergent oils, anti-freeze that will not evaporate, are but a few of the many improvements made possible by co-operative chemical and petroleum research.

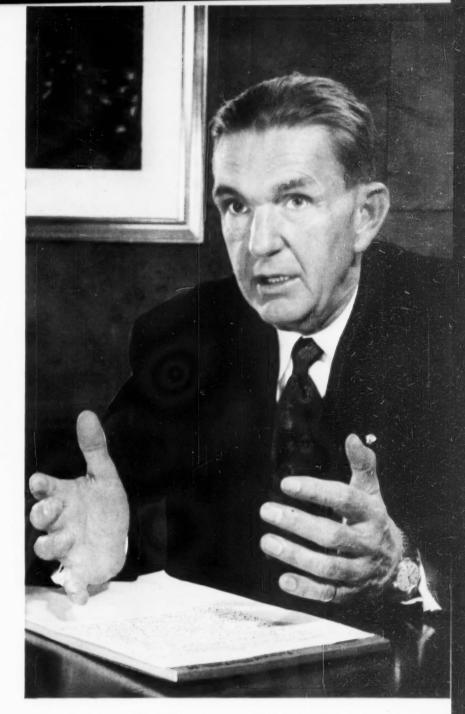
"Our own exclusive Sohio Boron Supreme motor fuel is a current example. Another is our Atlas Perma-Guard anti-freeze. These and other advances have resulted in better engine performance, longer car life, lower comparative costs, and more carefree miles for motorists.

"Today Sohio is in a better position than ever before to serve its many customers — thanks to all those who serve on the Sohio team, including our loyal suppliers like Wyandotte."

If you're looking for a capable source of chemical raw materials, why not try Wyandotte? Wyandotte Chemicals Corp., Wyandotte, Mich. Offices in principal cities.

Wyandotte CHEMICALS

Organics, Inorganics - World's largest manufacturer of specialized cleaning products for business and industry



Clyde T. Foster, president of Sohio. His company deals in petroleum from oil-well drilling to finished products. Wyandotte Chemicals serves the petroleum industry with ethylene glycol for anti-freeze, Carbose for drilling muds, caustic for "sweetening," and soda ash for water conditioning, to name a few. Petroleum is one of many industries that look to Wyandotte for both technical assistance and on-time delivery of needed chemicals.



2 "Ohio's most popular businessman," the friendly Sohio Dealer, sells only quality products, like Atlas Perma-Guard anti-freeze. His care of your cooling system helps protect your car. Wyandotte is one of Sohio's suppliers of ethylene glycol for anti-freeze.



3 Sohio keeps Ohio's automobiles rolling with a wide variety of products and services. Raw-material chemicals from Wyandotte are used to make such products for the petroleum and automotive industries as tires, hydraulic fluids, radiator cleaners, and many others.



4 Wyandotte's modern Glycol Plant. With these complete facilities and our fully equipped research center, we can help you solve many product or processing problems. If you have a chemical or processing problem, write us, giving as much detail as possible.

Turning Inints

What was the most important decision you made that led to business success? Mr. Warren Vierow asked many leaders of business this question in an effort to find what patterns of thought and action most contribute to success. Some "turning points" stem from necessity or pure impulse, others from careful analysis or foresight. Here are three more personal answers from the many Mr. Vierow has received.



HAROLD SCHAFER
President, GOLD SEAL COMPANY



ERNEST H. VOLWILER
President, ABBOTT LABORATORIES



W. T. PIPER
President, PIPER AIRCRAFT CORPORATION

SCHAFER "I think an individual's most important decision is to start his own business and spend the rest of his life utilizing his physical and mental abilities to increase that business instead of a business for someone else. Later on a man's ability to stick with it may be important, but, if he used the same ability for the benefit of another, he wouldn't be writing a successful business story for himself.

"You do not decide to go into a business for yourself; you sort of grow into it. In my case I did considerable moving around as a youngster going to several schools in different communities. In each of these communities I worked at different jobs, had different employers.

"While working for others, I was constantly thinking of ways in which their businesses could be improved. My ideas, however, were never related to what I should do if I were the owner. I believe that the average man works too hard simply doing his job and trying to please his employer to make such a connection. No matter how well he does, he feels he is still an employee. He never assumes he will have the finances necessary to buy his employer's business.

"While learning to think, create, and then execute ideas while working for another, one is developing the same abilities to later benefit himself." **VOLWILER** "Following graduation from college I entered the University of Illinois for postgraduate work in chemistry. World War I was under way. Active and, later, feverish interest in the establishment of an important chemical industry in America was stirring. Chemists were few in number, and the demand for their services began to grow.

"In 1916, after I had received my master's degree, I received an offer of a position with a large company and at a salary which considerably exceeded my expectations. It was a temptation to accept it and to forego my original intention of going on for the doctor's degree. After a few weeks' consideration, I was dissuaded by a number of people, including my parents and my principal professor. It appeared unwise to base a fundamental decision on the temporary factor of size of salary.

"It was fortunate for me that this choice was made, because some years later the company in question changed its interests and its direction. More important still was the fact that with the passage of time, it became increasingly important to have the doctor's degree for the practise of chemistry. Two years later, when I received this degree, an opportunity to join Abbott Laboratories developed and this proved to be a most happy and satisfactory one."

PIPER "Before the Taylor Brothers Aircraft Company moved to my home town, Bradford, Pa., I had had little interest in aviation. I became a stockholder in the company when a representative of the Chamber of Commerce induced my partner in a small oil property to buy \$800 worth of stock, half of which was for me. The company had been operating for a short time when I was asked to be a director.

"Following the Lindbergh flight, the aviation industry boomed. Our plane, a high wing monoplane called the 'Taylor Chummy,' was licensed and ready for production when in 1929 the stock market crashed. Sales practically stopped, and the company became bankrupt.

"While working on the 'Chummy,' we had built a light plane named the 'Cub.' It was priced at \$1,325 and seemed to have a large sales potential. I tried to interest some acquaintances in organizing a new company to manufacture the 'Cubs.' Failing in this, Mr. Taylor and I made the major decision to have them built ourselves. In a few years, we were turning out one-third of the light planes made in the United States.

"In 1946, I bought Mr. Taylor's interest and changed the name to Piper Aircraft Corporation.

"Our latest planes have little resemblance to those first 'Cubs.' Mr. Taylor and I little knew what we were starting."

NEW GUIDE TO KEY INDUSTRIAL MARKET AREAS

For your convenience the prime markets for industrial goods are pinpointed by size and location on this map. You can put it to use in your sales program in setting quotas, planning territories, measuring market potential, and in many other ways. The information is based on the new U.S. Census of Manufactures which is not yet completely released by the U.S. Department of Commerce. For a new study of the industrial markets see pages 52–56.

PINPOINTING KEY II

THE 90 KEY INDUSTRIAL MARKETS

RATED BY % OF U. S. TOTAL \$ VALUE ADDED FOR COUNTIES IN EACH AREA

42 PRIMARY MARKETS COLOR INDICATES PRIMARY MARKETS

	,		
1. NEW YORK	11.27	23. LANSING-KALAMAZOO	.80
2. CHICAGO	6.79	24. ROCHESTER	.79
3. LOS ANGELES	4.22	25. HARTFORD-NEW	
4. DETROIT	4.08	BRITAIN-BRISTOL	.76
5. PHILADELPHIA	3.50	26. DALLAS-FORT WORTH	.75
6. CLEVELAND	2.31	27. LOUISVILLE	.73
7. BOSTON	2.16	28. INDIANAPOLIS	.72
8. PITTSBURGH	2.15	29. SEATTLE-TACOMA	.68
9. ST. LOUIS	1.77	30. LANCASTER-YORK-	
10. SAN FRANCISCO	1.64	HARRISBURG	.67
11. MILWAUKEE	1.49	31. GREENSBORO-DURHAM	
12. BUFFALO	1.44	RALEIGH	.64
13. CINCINNATI	1.39	32. GRAND RAPIDS	.64
14. BRIDGEPORT-NEW		33. WORCESTER	.56
HAVEN-WATERBURY	1.36	34. CANTON	.54
15. BALTIMORE	1.34	35. SYRACUSE	.52
16. MINNEAPOLIS-ST.		36. WILMINGTON	.52
PAUL	1.08	37. AKRON	.51
17. HOUSTON-BEAUMONT	.95	38. ALLENTOWN-	
18. PROVIDENCE, R.IFALL		BETHLEHEM-EASTON	.50
RIVER-NEW BEDFORD,		39. MADISON, WISC	
MASS.	.89	ROCKFORD, ILL.	.50
19. FLINT-SAGINAW	.88	40. ALBANY-SCHENECTADY	
20. KANSAS CITY	.86	TROY	.50
21. YOUNGSTOWN	.85	41. SOUTH BEND	.50
22. DAYTON	.82	42. COLUMBUS, OHIO	.50

PRIMARY MARKET TOTAL-65.57%

48 SECONDARY MARKETS

43. SPRINGFIELD-HOLYOKE	.47	66. READING	.25
44. TOLEDO	.46	67. TULSA	.25
45. ANDERSON-KOKOMO-		68. RICHMOND	.25
111 m 1 m 1 m 1 m	.45	69. FT. WAYNE	.24
46. CHARLOTTE	.44	70. BATON ROUGE	.21
47. ATLANTA	.42	71. SALT LAKE CITY	.21
48. PORTLAND, ORE.	.39	72. DENVER	.21
49. GREEN BAY-OSHKOSH-		73. EVANSVILLE	.20
SHEBOYGAN	.38	74. GREENVILLE-	
50. MOLINE, ILL		SPARTANBURG	.20
DAVENPORT, IOWA	.36	75. MANCHESTER	.18
51. CHARLESTON, W.VA		76. SPRINGFIELD-	
ASHLAND, KY.	.36	DECATUR, ILL.	.18
52. BINGHAMTON-ELMIRA		77. OMAHA	.18
53. ERIE	.34	78. NASHVILLE	.18
54. BIRMINGHAM	.32	79. PITTSFIELD	.17
55. NEW ORLEANS	.32	80. NORFOLK-NEWPORT	
56. WHEELING, W.VA		NEWS	.17
	.32	81. ROANOKE-LYNCHBURG	.15
57. PORTLAND-AUGUSTA-		82. JAMESTOWN	.15
merica with time.	.32	83. OTTAWA-LA SALLE-	
20.1601111	.32	PERU, ILL.	.14
B 21 1112111 1112	.29	84. JOHNSTOWN-ALTOONA	.14
60. UTICA-ROME	.28	85. WASHINGTON, D.C.	.14
61. SCRANTON-		86. CEDAR RAPIDS	.13
WILKES-BARRE		87. COLUMBUS, GA.	.11
OZ. DES INCHIES	.27		.10
63. CHATTANOOGA	.2/	201111111111111	
64. WICHITA	.26		.10
65. TRENTON	.25	90. MOBILE	.10

SECONDARY MARKETS TOTAL-12.25%

NDUSTRIAL MARKETS



90 KEY INDUSTRIAL MARKET AREAS DEFINED BY COUNTIES

Some of the key market areas are based directly on the Census Bureau's standard metropolitan areas, but most have been modified. Some areas, as the Bridgeport-New Haven-Waterbury area, are consolidated to reflect realistic distribution pattern. Many important industrial counties, not included in the Government listing of principal areas, have been grouped and listed under the key city or cities.

- New York City; Nassau, Rockland, Suffolk, Westchester Counties, N. Y.; Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Union Counties, N.J.
- Cook, Du Page, Kane, Lake, Will Counties, IlL; Lake County, Ind.
- 3. Los Angeles, Orange Counties, Calif.
- 4. Macomb, Oakland, Wayne Counties, Mich.
- Bucks, Chester, Delaware, Montgomery, Philadelphia Counties, Pa.; Burlington, Camden, Glouscester Counties, N.L.
- Cuyahoga, Lake, Lorain Counties, Ohio
- Essex, Middlesex, Norfolk, Plymouth, Suffolk Counties, Mass.
- 8. Allegheny, Beaver, Washington, Westmoreland Counties, Pa.
- St. Louis City; St. Charles, St. Louis Counties, Mo.; Madison, St. Clair Counties, Ill.
- Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Solano Counties, Calif.
- Kenosha, Milwaukee, Racine Counties, Wis.
- 12. Erie, Niagara Counties, N.Y.
- Butler, Hamilton Counties, Ohio; Campbell, Kenton Counties, Ky.
- 14. Fairfield, New Haven Counties, Conn.
- Baltimore City; Baltimore, Anne Arundel Counties, Md.
- Anoka, Dakota, Hennepin, Ramsey Counties, Minn.
- 17. Harris, Jefferson Counties, Texas
- Bristol, Norfolk Counties, Mass.;
 Bristol, Kent, Newport, Providence, Washington Counties, R.I.
- 19. Bay, Genesce, Saginaw Counties, Mich.
- 20. Wyandotte County, Kansas
- 21. Mahoning, Trumbull Counties, Ohio; Lawrence, Mercer Counties, Pa.
- 22. Clark, Greene, Miami, Montgomery Counties, Ohio.
- 23. Calhoun, Ingham, Jackson, Kalamazoo Counties, Mich.

- 24. Monroe County, N.Y.
- 25. Hartford County, Conn.
- 26. Dallas, Tarrant Counties, Texas
- 27. Jefferson County, Ky.; Clark, Floyd Counties, Ind.
- 28. Marion County, Ind.
- King, Pierce, Snohomish Counties, Wash.
- 30. Dauphin, Lancaster, Lebanon, York Counties, Pa.
- Alamance, Durham, Forsyth, Guilford, Wake Counties, N.C.
- 32. Kent, Muskegon, Ottawa Counties, Mich.
- 33. Worcester County, Mass.
- 34. Columbiana, Stark, Tuscarawas Counties, Ohio
- 35. Cayuga, Onondaga, Oswego Counties, N.Y.
- 36. State of Delaware; Cumberland, Salem Counties, N.J.
- 37. Summit County, Ohio
- Lehigh, Northampton Counties, Pa.; Warren County, N.J.
- 39. Dane, Rock Counties, Wis.; Winnebago County, Ill.
- 40. Albany, Rensselaer, Schenectady Counties, N.Y.
- 41. Elkhart, La Porte, St. Joseph Counties, Ind.
- 42. Franklin County, Ohio
- 43. Hampden, Hampshire Counties, Mass.
- 44. Lucas County, Ohio
- 45. Delaware, Grant, Howard, Madison Counties, Ind.
- Cabarrus, Catawba, Cleveland, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Rutherford Counties, N.C.
- 47. Cobb, DeKalb, Fulton Counties, Ga.
- 48. Clackamas, Multnomah, Washington Counties, Ore.; Clarke County, Wash.
- Brown, Fond du Lac, Manitowoc, Sheboygan, Winnebago Counties, Wis.
- Henry, Rock Island, Whiteside Counties, Ill.; Clinton, Scott Counties, Iowa.

- 51. Cabell, Kanawha Counties, W.Va.; Boyd County, Ky.
- 52. Broome, Chemung Counties, N.Y.
- Crawford, Erie, Venango Counties, Pa.
- 54. Jefferson County, Ala.
- 55. Jefferson, Orleans, St. Bernard Parishes, La.
- Brooke, Hancock, Marshall, Ohio Counties, W.Va.; Belmont, Jefferson Counties, Ohio
- Androscoggin, Cumberland, Kennebec, Penobscot, York Counties, Maine
- 58. Peoria, Tazewell Counties, Ill.
- 59. Shelby County, Tenn.
- 60. Herkimer, Oneida Counties, N.Y.
- 61. Lackawanna, Luzerne Counties, Pa
- 62. Black Hawk, Polk, Marshall Counties, Iowa
- 63. Bradley, Hamilton Counties, Tenn.; Whitfield County, Ga.
- 64. Reno, Sedgwick Counties, Kans.
- 65. Mercer County, N.J.
- 66. Berks County, Pa.
- 67. Tulsa County, Okla.
- 68. Richmond City, Va.
- 69. Allen County, Ind.
- 70. East Baton Rouge Parish, La.
- 71. Davis, Salt Lake, Utah, Weber Counties, Utah
- 72. Denver County, Colo.
- 73. Vanderburgh County, Ind.
- 74. Greenville, Spartanburg Counties, S.C.
- Hillsborough, Merrimack, Rockingham Counties, N.H.
- 76. Macon, Sangamon Counties, Ill.
- 77. Douglas County, Neb.
- 78. Davidson County, Tenn.
- 79. Berkshire County, Mass.
- Newport News, Norfolk, Portsmouth Cities, Va.
- Danville, Lynchburg, Roanoke Cities; Campbell, Roanoke Counties, Va.
- 82. Chatauqua County, N.Y.
- 83. La Salle County, Ill.
- 84. Blair, Cambria Counties, Pa.
- 85. District of Columbia
- 86. Linn County, Iowa
- 87. Muscogee County, Ga.; Lee County, Ala.
- 88. Blount, Knox Counties, Tenn.
- 89. Chatham County, Ga.
- 90. Mobile County, Ala.

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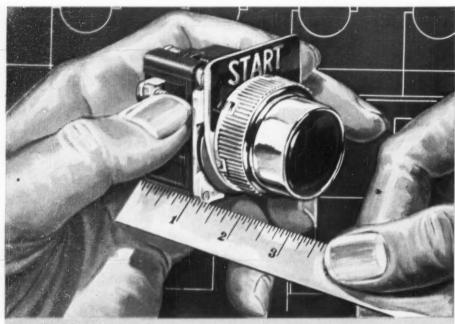
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Now...for machinery designers...new heavy duty pushbutton units built to the standards of the spectacular new Cutler-Hammer Three-Star Motor Control



These are the world's smallest heavy duty pushbuttons. They require a behind-the-panel depth of only 1 3/32". This is 40% less space than needed by the next smallest units on the market. Double-pole contact blocks are ayellable in all combinations of normally open and normally open

mally closed contacts. Each control circuit is electrically and mechanically isolated from the other. Each circuit is clearly identified and all terminals are color coded. Rapid on-the-job circuit additions are obtained by stacking contact block on contact block.



These pushbuttons may be flush type, extended type or with mushroom heads . . . in a wide range of colors for quick control identification. Standard, large, and jumbo size legend plates fit every type of operator and indicating light in the entire line.



A maintained-contact pushbutton assembly that saves more than its entire cost by installation savings. New attachment with its pushbuttons mount in minutes; no fussy adjustments. Neither alignment nor spacing of units is critical. Pushbuttons will not bind or stick; always operate perfectly.

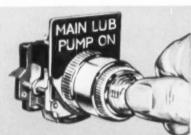
- they install easier
- they work better
- they last longer

Design engineers are quick to recognize that these new heavy duty pushbuttons have everything. There is nothing on the market like them. They are amazingly compact to require the least back-of-panel depth. They are one-hole mounting and they are oil tight. They easily provide for as many as eight separate control circuits per pushbutton, eight completely isolated heavy duty contacts either normally open or normally closed. The buttons may be flush type, the extended type or with mushroom heads. They can be black, red, yellow, green or gray. See the new one-button control station, C-H Roto-Push. See the easiest-to-install maintained-contact pushbutton attachment and the means for padlocking any of the standard pushbuttons. There are both knob and key operated selector switches in this complete line. Also matching indicating lights and the new automation safety light, PresTest. Be sure you have complete information now. Write today on your company letterhead for a copy of the new Cutler-Hammer Panel Builders Handbook Pub. EE-120. CUTLER-HAMMER, Inc., 1436 St. Paul Ave., Milwaukee 1, Wisconsin.





The C-H one-hole mounting oiltight indicating lights with new wide-visibility lenses are the most visible from all angles by actual light meter tests. Available in either transformer or resistor types. Lenses offered in six different colors.



PresTest... the self-testing indicating light. Vital to safety and proper use of machines, particularly in automation. PresTest now permits instant proof light is NOT off because of burned-out bulb. Merely pressing on the light lens disconnects bulb from its normal circuit and checks it on a test power supply. Resistor and transformer types available.



two or three position. Positions may maintain contact or have spring return. Three standard contact blocks provide a wide range of circuit combinations with the use of just a single block. Unlimited circuitry by adding blocks.



Roto-Push... the one-button control station. One Roto-Push can provide all the control functions for which two or three separate pushbuttons would be used normally. Available in a wide range of selector and button operators, Roto-Push simplifies panel design and saves installation time to cut costs. Improves machine-operator efficiency.

OBSOLESCENCE— MEN AND MACHINES



NOT SO LONG AGO a farmer pulled up in front of a filling station in a brandnew 1924 Maxwell. The farmer explained that it was the last of six he had bought over thirty years ago. It was nice and shiny, but the tires had to be replaced and the leather upholstery had dried up and split like the neglected binding of a book. Asked why he bought six cars, he replied, "The dealer said that this was the best car I could ever get for my money—and I believed him."

The farmer chugged off on his four cylinders, still convinced that he got his money's worth, despite all the high compression engines, power steering, and high octane gas of a later generation. And it is well to remember that hundreds of Model T Fords are still running to the satisfaction of their owners.

In the competitive world of industry, one can't be as complacent or philosophical of his judgment in operating an obsolescent machine, whether it be a printing press, a power loom, or a die-stamp. The path of progress and profits is marked by the junk yards of earlier decades. It takes courage as well as capital to disturb plant equipment and routine to install new machinery, but the decision carries a time limit with it.

One of the problems of our day is that technological change is often breathing on the neck of men installing new equipment. The problem of keeping ahead of invention and refinement in manufacture is not half so serious with machines as with men and their ideas and methods. Success is a relative gage of merit. The idea, device, or technique that was successful ten years ago carries with it no guarantee of similar results in the changing methods and markets of the mid-twentieth century.

The pattern of success to one man may be a mere assumption based on limited experience and mediocre competition. A generation ago the 4.20 mile was a sensation, a decade ago the 4.10 mile was an extraordinary achievement, but some experts claimed the human body could never break the barrier of a 4-minute mile. In one year several runners broke the barrier without collapsing. Despite dire predictions, aviators have crashed through the sacred sound barrier without any major catastrophe. Man achieves pretty much any project within the realm of physical law when he sets his mind to the task, and it ill-behooves the cynic to say it can't be done. More minds slow up for compliments than those which speed up under the whip of criticism.

A good machine may last for years. Circumstances can occasionally justify its existence, even if it is not as efficient as the latest model. However, a good mind may deteriorate rapidly if, in complacency or lethargy, it ignores the daily setting-up exercises of ideas or evades the constant sparring on the questions, doubts, and tests that belong to creative thinking. Fifteen years of easy selling may invite a management attitude that interprets momentum as a proof of progress, and gives the lazy mind a false sense of achievement. Laissez faire is a sign of mental drowsiness in management, and especially dangerous when the tide is favorable.

In industrial design isn't permanent, neither are the habits, whims, or desires of the public who influence the shape, size, and function of the product as well as the machine. Change is the catalyst of every significant shift in industry, shifts that turn raw material stock piles into riches or rubbish, machinery into capital assets or junk, processed items into gold-leafed inventory or hard-to-move distress merchandise.

Obsolescence begins first in the mind that prefers reminiscence to forward planning. It takes root in mental habits long before it spreads its cobwebs over lathes, templates, and dies. If management stays young in its sense of enterprise and alert in its thinking, obsolescence is seldom included among its negative assets.

The Edilors



WHAT'S WRONG WITH THE INCOME TAX?



INCOME TAX IS NOTHING NEW. THIS BAS-BELIEF SHOWS ISBAELITES BEARING FEES TO THEIR KING ABOUT 900 B. C. -- BETTMANN ARCHIVE

MAURICE E. PELOUBET

Pogson, Peloubet & Co.

Taxes are the price that society pays for being civilized. Since man abandoned his nomadic habits and became rooted in a community, he has found it necessary to regulate his habits and to accept the disciplines that are imperative where people rub elbows, exchange goods and services, and subscribe to certain approved concepts in moral and political conduct. Order in society is the basis of good government, and government requires money for its orderly function. In our complex society, the income tax is the primary source of revenue for the main financing of government and its many functions.

Mr. Maurice Peloubet casts an appraising eye on the income tax law, its origin, value, and problems. His approach is general and his criticism applied in broad strokes. Without impugning the motives of legislator or administrator he points to the lack of moral values or principles in the design and interpretation of the Income Tax Law. He asks for remedies to the inequities

and recommends a redrafting of the law along fundamental principles of justice and equity rather than on opportunism which invites unfair or punitive imposts. This means another look at the legislative repair job of the Revenue Act of 1954.

People in a prosperous industrial economy such as ours don't question the right of the government to ask for taxes, but they have a right, Mr. Peloubet says, to have a law which is clearly written and fairly applied to all who share in the privileges and responsibilities of the nation. When the complexities of the tax law encourage business men, acting personally or for their corporation, to decide against first principles in sound economic management, something is wrong and should be corrected. Public criticism of income tax complexities and inequities in 1956, Mr. Peloubet defines as a warning which ought to be recognized and acted upon promptly by the Federal Government.

W HEN EXEMPTIONS were higher, rates lower, and incomes smaller, the Federal income tax was not a very serious matter for most of us. Now, the base of the pyramid of taxpayers has been broadened by smaller exemptions and higher incomes to take in almost everyone. The rates go up so steeply that you do not have to be rich to be hurt. This makes the interest in income taxes so keen as to be almost painful.

At the same time, not many citizens know the complications and ramifications of the vast, sprawling organization that administers the tax law, or of the incredibly complex and technical rules under which taxes are levied and collected. Some of this complexity is necessary, some avoidable, and some clearly unwarranted. Examination of the tax system is necessary. Criticism of its weaknesses and failures is as much a duty as is support of the loyal and faithful officials and employees who are doing their best, often under great difficulties, with the present system.

The purpose of criticism of the structure and administration of the tax laws is not to abolish them or to hinder their enforcement. It is rather to help in their administration by showing up the defects before they become so serious that a general antagonism is developed.

We have taxes because governments need money to serve and protect the citizens. They get it in one of three ways: they can invade and conquer another country; they can sell or lease natural resources that do not already belong to someone else; or they can tax their own citizens or visitors and travellers.

Governments like that of the United States must look to their own people for almost all the money they need to operate. Getting this money out of people's pockets is called taxation.

All laws about taxes must have their start in

ent legislation, and which need new legislation to be cured or removed; and those which result from bad enforcement of good or acceptable

Except to the extent that they may advise for or against proposed bills, the Treasury Department and the Internal Revenue Service can do nothing about the errors and faults which should be corrected by legislation. Among these are:

1. Rates of the personal income tax in the upper brackets which are largely unproductive in amount as well as restrictive to business enterprise.

The Government now collects some \$50 billion each year in income taxes of which some \$32 bil-

things. It would encourage the investment of funds in business ventures instead of securities, thereby increasing the income of the country and the tax collected. It would also put the business man, the enterpriser, and the salaried man on the same level. No tax would be lost as the average effective rate would not be lowered, only the nominal rate.

2. Taxation of genuine capital gains at rates which "freeze" holdings and hinder or delay transactions, thus creating artificial markets.

Sales of capital assets are now taxed at a maximum of 25 per cent. If an investor with a large enough income to require payment of the maximum capital gains tax owned a security bought at \$100 and sold it for \$150, he would have to pay a tax of \$12.50 on the capital gain of \$50. He would then have \$137.50 to invest at the same market level. He could not buy another security of equal value to the one he sold. The \$12.50 is, in effect, a very high transfer tax, imposed because he wanted to change his holdings. The changes a prudent investor would ordinarily make in his holdings are thus hampered. At the same time, there are some transactions now called capital which are not. A fair maximum tax rate would permit these to be taxed as ordinary income. The genuine capital gains, though, should be taxed at a low rate, if at all, because the taxpayer has no more after the transaction than he had before.

3. Failure to make it possible to preserve closely held corporations either by special rates of tax or by gi ing estates a long time to pay, if the taxes on the death of the owner of a large interest would force break-up of the corporation.

There are many cases where a man's entire fortune consists of stock in a small, closely held corporation, of which he is the sole or a very large stockholder. The corporation may be unable to redeem enough of the stock to pay the estate and inheritance taxes. Generally, the stock cannot be sold and nothing can be done but liquidate at a loss. Apart from the injustice to the stockholder's heirs, employees are thrown out of work, and the community suffers the loss of a valuable enterprise. Special rates or methods of settlement should be provided when the break-up of a business would be caused by the collection of state and inheritance taxes.

4. Failure to give adequate relief to U.S. citizens or corporations doing business abroad.

There are several provisions whose purpose is to remove any disadvantages a United States citizen or corporation doing business abroad may have as a result of liability to pay taxes to the United States as well as to the country where the business operates. The provisions are too incomplete, narrow, and technical, and should be thoroughly overhauled.

5. Failure to recognize the falling value of the dollar, by allowing depreciation and amortization deductions based on what property is worth to-day instead of what it cost a long time ago.

All taxpayers that use machinery which does Continued on page 75

SEVEN AREAS FOR INCOME TAX REFORM

- 1 Upper bracket rates which tend to restrict business enterprise.
- 2 Genuine capital gains taxation at rates which freeze holdings.
- 3 Inadequate provisions to preserve corporations on owner's death.
- 4 Failure to provide sufficient relief to American business abroad.
- 5 No allowance for falling dollar value in depreciation and amortization deductions.
- 6 Inadequate recognition of market conditions in LIFO inventory tax methods.
- 7 Failure to provide self-employed with adequate pension opportunities.

the Ways and Means Committee of the House of Representatives, which is told by the spending committees what to provide. It then drafts a Revenue Act aimed at collecting that much from the taxpayers. Finally, it tells the Treasury Department and the Internal Revenue Service to enforce the act and to collect taxes under it.

Before trying to find out why the tax laws are not always administered fairly and justly, let us look at the different jobs the committees and agencies have in writing the laws. The spending committees and the Bureau of the Budget decide how much is needed to run the government. The Ways and Means Committee and the Senate Finance Committee write the bill to make it possible to take the funds from the taxpayers. Then the Treasury and Internal Revenue Service see that the taxpayers actually give up the cash.

The spending committees cannot go beyond the door of the Ways and Means Committee and cannot interfere with how the funds are to be provided. The Treasury and the Internal Revenue Service, though they may advise when called upon, cannot change a Revenue Act once it is passed.

In other words, the spending groups must keep out of revenue legislation, and the Treasury and the Internal Revenue Service should think only of collecting the taxpayers' money according to the Revenue Act in force at the time.

The basic faults of our tax system are of two kinds: those which are the result of faulty preslion are personal taxes. If we take a taxable income of \$6,000 per year as an average, the rate on that would be in total about 23 per cent. This gives us a total taxable income of about \$139 billion.

The large taxable incomes, say above \$250,000 per year, might run to \$2 to \$3 billion in total. If we assume that the large incomes are all received by married couples without dependents, the effective rates on taxable income would start, according to the rate tables, at about 70 per cent and progress to a top rate of 91 per cent.

However, the best information we have is that the actual effective rates on these large taxable incomes is between 45 per cent and 55 per cent. (These rates are based on 1952 statistics, but there is no reason to believe that the current figures, when they come out, will be much different.)

Though not, of course, exact, these figures are near enough to show the significant facts. How is it possible to get such a low effective rate on the large incomes? Principally through capital gains transactions, taxed at 25 per cent. The individual who gets all his income as a corporate salary pays the highest rate, but there are enough of the capital gains transactions to keep down the average effective rate.

What is so bad about all this? Should we increase the rate on capital gains? Not at all. That rate is quite high enough. Instead we should lower the top personal rate to some reasonable figure, say 50 per cent, which should do two



LESS DEADWOOD ON THE BOARD OF DIRECTORS

One company has found a way of knocking directorial absenteeism on the head.

Who picks whom for membership on the board is a knotty corporate problem, and alarming new answers appear on the horizon.

ALFRED G. LARKE

Employer Relations Editor

A NYONE who has given sufficient consideration to the Lancaster and Chester Railroad, a small South Carolina road whose board of directors Miss Gypsy Rose Lee adorns, must realize that the board of the average American enterprise is not nearly so colorful as it might be.

With such prospects as Miss Marilyn Monroe, Miss Jane Russell, Miss Tallulah Bankhead, and Miss Judy Holliday uncommitted, in an industrial sense, it is clear that many a corporation is passing up any number of splendid opportunities to knock directorial absenteeism on the head, once and for all.

The point here is not to argue that every board should include a fan dancer as well as a chairman, or even that corporations might take more cognizance than they do of the fact that approximately 50 per cent of people are women.

The American Management Association conducts no seminars in directorial absenteeism or feminine representation in management, which establishes at least a good *prima facie* case that neither matter is currently felt by anyone to be a management problem.

This criterion cannot be accepted all the way down the line, however. There are a number of courses offered in job evaluation, executive development, creative thinking, participative listening, brain-storming, or 100 varieties of human relations techniques. Yet nowhere is a course offered in how to pick a board of directors, despite the pretty obvious need for one. The literature on the subject is scarce, too. There may be

two reasons for this lack of ready information:

1. Picking a board of directors is something like getting married. It's a thing most men do not do too often in one lifetime and, consequently, since a man gets so little opportunity to practise the art, he seldom becomes an artist at it, equipped to teach others.

2. There's a little confusion, anyway, as to just who *does* pick a board, except occasionally in the case of a new company just being founded. All too often a man does it without realizing what he's doing—he makes decisions about *other* matters which rather automatically force upon him directors who come with the decisions like parts of a package deal.

Besides, picking a board is not a function you will find in many manuals of organization. It's a task that seems to lie somewhere in the middle of the table, waiting for the boldest hand or quickest wit to seize it. It is the kind of thing that lends itself to manipulation, and it is probably talked over less, in management meetings, than any other decision a company makes. Purchase of a \$50,000 machine gets a full-dress talking-over at a formal meeting; choice of a million-dollar director is much more likely to be settled at a luncheon tête à tête.

The essential purposes of a board of directors (aside from meeting the requirements of corporate law) may be categorized in several ways, any of which will throw some light on how and why to choose this man or that for a directorship.

There is the board chosen for its talents in

day-to-day running of the business, likely to be loaded with operating and administrative executives, and functioning like the executive committee of a more remotely-directed concern. In contrast, there's the board primarily representing interests outside the company and expected at the most to help set broad policy.



There's confusion as to just who does pick a board, to say nothing of how he does it.

An electronics corporation may induce a number of theoretical physicists to join its board, hoping to pick their brains at something less than they would charge if they were hired as consultants. Another company may find board membership, the prestige it confers, and the opportunities it offers, a way of keeping a couple



Some directors come automatically with bank loans, and stay on till loans are paid.

of desirable executives from breaking away.

A pretty obvious prospect for the board is a good corporation attorney. His membership may

not reduce corporate legal fees, but it's more than likely to assure that the legal services will be of the first quality. Any man's talents are usually honed to a finer edge when he feels he's working for himself or something of which he is a part. It's stimulating to be the client of your own professional services.

Agatha Christie, the mystery writer, made the point in reverse fashion, perhaps, in the account of an interview her detective, Hercule Poirot, had with a French attorney. Poirot asked that gentleman what he knew about a certain lady of poor repute. "I know her only professionally," sniffed the attorney. "Your profession, monsieur, or hers?" Poirot queried gently.

Another way of looking at the choice of directors is to consider whether they are picked voluntarily or are forced upon the company by circumstances.

If a bank or insurance company or investment house is into the

company for a goodly sum, it is a cinch who is going to pick at least two or three of the board members. And the men picked will be like the chain on the post office pen—there to let you use it, but to see you don't run away with it.

These directors come automatically with the loan or investment, and they stay until it is paid back. One of their tasks, indeed, may be to see that it never is paid back if it turns out to be a profitable investment. In such a case, their advice may be tinctured with a design to promote more and bigger and better borrowings or stock flotations.

This kind of director is a necessity, under the circumstances, but he isn't necessarily the kind of director a corporation president likes to sur-

round himself with. He will question flyspecks on the outgoing side of the ledgers and is more likely to cramp an executive's style than to improve it.

Necessary as these guardians of the gold may be on a board, historically they have sometimes constituted a public relations nuisance. In the days when it was popular to present Congressional committees with large, photogenic charts depicting octopuses, or, alternatively, monster spider webs, which showed how (a) J. P. Morgan and Company, or (b) the Rockefeller interests, or (c) any other popular target, controlled most of industry, these directorial agents of the leading institutions were a very handy tool for the chart makers.

By tracing overlapping board memberships, an investigator could often, for instance, demonstrate that Morgan dominated the chain of local shoe shine shops which everyone, up to that moment, had thought was run by a small, independent corporation known as Harry's Shoe Shines. This result was achieved by a method

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By a method known to football-score dopesters, it was proved that J. P. Morgan & Co. controlled Harry's Shoe Shine (or vice versa).

known to ardent football dopesters who, by careful choice of selected scores, can always prove that the West Side High School scrub team is better than Notre Dame's varsity. This is done by showing that the W.S.H.S. scrub team once beat Team A, which beat Team B, which beat Team C, and so on until some team is found that once beat Notre Dame.

Because the method seems to smack of guilt by association, which has rightly fallen under a cloud, octopus and spider-web charts are not seen very much any more, and they may be gone for good. But probably most damaging to them was that they had no built-in regurgitationdamper; they were reversible and might with equal logic prove that Harry's Shoe Shines controlled J. P. Morgan, a very jolly conceit.

A chancier choice than the naming of an investment protector is to put on the board a representative or two of substantial suppliers or customers of the corporation, in the hope they will become so interested they will let their interest get the better of their judgment.

This is fairly certain to be a forlorn hope. Almost by definition, a man who would let himself become so involved in a customer's or supplier's concern that he was tempted to milk his own company for the other's benefit is a fool, and who wants a fool on his board? If he isn't a fool, he must be sure he can outwit you, and that's not an enticing prospect, either.

Board membership may be a nice way to flatter a big supplier or good customer, but it is also a nice way to put one's neck in a noose and hand the free end of the rope to some other fellow—a practise no mother recommends to her son.

Much safer, naturally, is to handpick a poor nephew, or two or three similarly dependent relatives. Nephews seem to have the preferred

degree of relationship for this purpose, no doubt because it is easier, when the crisis comes (and it always comes in industrial nepotism), to break off family relations with a nephew than with, let's say, a brother-in-law. Brothers-in-law are commonly considered bad medicine. On a board of directors, they are any man's poison. Even brothers get along much more amicably, experience-rating tables show.

It is impossible to build up a plausible board out of nothing but office secretaries, of course, but there is no doubt that a personal secretary offers the opportunity for the cheapest single vote an executive can line up. Flattered by the attention and by the gift of a share of stock that qualifies her for office, she will even do the clerical work free in exchange for being listed as assistant secretary on the corporation letterhead.

Yet, for bulk and for mechanical control of the votes of the board,

after all is said and done there is nothing to beat a parcel of relatives who otherwise would be selling vacuum cleaners from door to door.



Safest way to pick a board is to pick dependent relatives; nephews are most tractable.



A personal secretary offers the cheapest single vote an executive can buy. Flattered by attention, she will even do the clerical work free.

But is mechanical control of votes a safe and sound principle in these days when every real public relations man is a pastor, and the custodian of his boss's conscience as well? Any public relations man will tell you, "No!"

Listen to the P. R. men, indeed, and you may wind up with a strange and wonderful assortment of boardsmen. A general or admiral (retired), for authority, perhaps. An adroit, articulate political figure (preferably retired from the public fray or with teeth otherwise drawn), for popular acceptance. A nuclear physicist or a college dean, to prove the company has nothing against academic theorists or, anyway, against the ideas they may contribute. A Baruchian elder citizen, to show reverence for wise old age. A Luckmanian young fireball, to indicate youthful alertness and aggressiveness.

Not to be overlooked is the likelihood that the public relations people will get children into the act, too, even before women achieve equal suffrage in the directorial field. Read the papers carefully and a definite trend in that direction will establish itself before your eyes.

Count up the Boys' States, where youth takes over the government for a day. Watch the nine-year-olds who know more about stocks and bonds than anyone, as they walk off with big TV quiz prizes. Note the eight-year-old stockholder who recently advised the board of directors of the New York Giants on how to build for the future.

It is easy to see where the P. R. men's advice is

leading us. By 1959, some bright publicity man for a company that needs its name in the papers will have got a child onto its board. And, within five years, the public relations people will not only have made the practise respectable; they will have made it mandatory for any progressive corporation to have a representative of the Gilbert Youth Research Organization on its board. The children's function, of course, will be to win for the company the loyalty of its future customers, investors, and workforce, in advance.

It is obviously none too early for the alert board chairman or corporation president to begin standing in front of a full length mirror and practising to make like Elvis Presley. The skill will soon come in handy. (And if you don't know who Elvis Presley is, you'd better retire now while the retiring is good. The youths you will soon have to deal with-they know.)

While females, numbering about 83.2 million, are the biggest minority largely unrepresented on boards of any companies except those they own, it is worth keeping in mind that 38 per cent of the American population—a total of 62.1 million people-are legal minors, that is, under 21. The problems cited here may seem of concern only to the larger corporations, in which everything that is simple in a small concern appears to become complex. But as surely as acorns grow

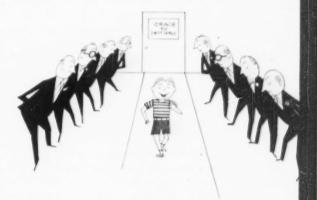
into mighty oaks, little green apples develop into big bellyaches. The small outfit that wishes and hopes to expand will some day come up against

the big fellows' complexities.

It may seem simple, when a man has a new invention or sees an opportunity for a new service or new product, to pick a helpful, friendly board of directors from among his fellow townsmen to help him steer his new enterprise through its initial years. And so it is, at first, but in those initial choices lie the seeds of future troubles.

Even if he doesn't give a block of stock to the patent attorney who protects him from the wolves, and then nominate him to the board, he is sure to pick at least some men he will have to worry about dropping as he grows.

The local banker may be good at the start, but won't he have to go when his bank can no longer meet the expanding company's credit

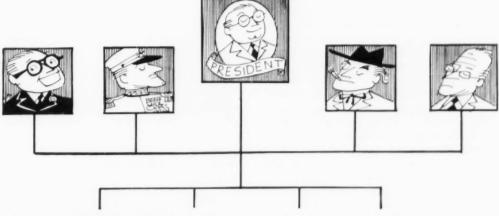


The day is not far when each board will have a child to lead its forward planning.

needs? Local merchants, the big men of the town, give a new company the local prestige it may well need when it is getting under way. But often the local dry-goods store operator's knowhow proves insufficient when the company begins batting in the big leagues. And so with the others. A management consulting firm's first task, often, in ministering to a company suffering its first growing pains, is to break the news that the loyal first-board members have got to go,

Then the entrepreneur, the idea-man who got the thing going, runs into double trouble. He is torn between corporate needs and personal loyalties, between the advantages of enlisting bigtime directors and the disadvantages in community relations in dropping local men.

There is an easy way out: Quit your presidency and let your relatives support you for a while. But few men seem to prefer this choice. Perhaps taking a leaf from Elliott Springs' fandancer-bedecked Lancaster and Chester Railroad, they might put a little sunshine back into their lives by co-opting some glamour.



Listen to a P.R. man and wind up with a strange and wonderful board: a joy-boy for vigor, retired general for authority, politician at pasture for popularity, a dean for sagacity.



. . . manpower the nation's most valuable asset

LAMBERT PHOTOGRAPH FROM LEWIS

MANAGEMENT PROBLEMS OF WORKER PRODUCTIVITY

JAMES P. MITCHELL Secretary, U.S. Department of Labor



Greater output per man-hour has contributed immensely to America's industrial growth over the past 50 years. But rising worker productivity has also presented management with many new problems. Here the Secretary of Labor analyzes our past growth and the challenges management must be prepared to meet in the years ahead.

ISTORIANS now record as one of mankind's great achievements the rapid improvement in American living and working conditions in the first half of the twentieth century. No previous fifty year period in man's history has seen such vast changes in the variety, quality and quantity of goods and services for personal consumption.

The background of this impressive achievement is deservedly receiving the closest study by visitors of all nations. They note traits that foster America's economic growth: an ambition to improve one's position, a drive to work and save to this end, and a cherishing of individual initiative. In the competition of economic systems, American management and labor's sense of "adventurous urgency" toward change and improvement, as one team of foreign experts observed, may prove to be one of our most valuable and unique resources.

Looking forward, we see possibilities of advances in living conditions, similar to if not greater than those of the past, as a result of new

developments in science and industry. At the same time, we recognize that industrial changes may imply a painful transition for those whose jobs and businesses become outmoded. To realize more fully the potentialities of our dynamic economy for human welfare, it seems essential to assure a greater degree of security against the hardships of readjustments. The welfare of all may be enlarged by minimizing the losses sustained by individuals. A better understanding of the forces, benefits, and problems of industrial progress will help us to prepare for the changes that are now appearing and to benefit from the opportunities that lie ahead.

One result of the universal interest in America's "key to welfare" is a broader understanding of the concept of productivity. It is undoubtedly true that business men make use of the idea under different names in their everyday decisions about their company's cost, price, and profits. Yet the concept has a bearing on problems of much broader significance.

Economists define productivity, in its most

general form, as a relationship between an output and input. In measuring productivity of an industry or economy, however, we can count output in a number of different ways, and we can use different inputs, such as labor, capital, or fuel, as a basis. Each of these has significance for particular purposes.

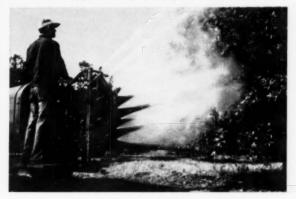
However, the most widely used measure of productivity relates the output of goods and services to our most valued resource—human beings. Output per worker or per man-hour reflects all the diverse influences at work in an industry such as changes in machinery, production processes, flow of materials, capacity utilization, and the skill and effort of labor and management.

The usefulness of the output per man-hour ratio is easily demonstrated. In our free economy we seek to enlarge the output of goods and services that go to consumers. At the same time we constantly strive to economize the use of man's energy in production by improving our tools, production methods, and management practises. The trend in this ratio, therefore, is a useful statistical tool for evaluating, in human terms, the progress of technology and the economy.

The significance of productivity for the material level of living may be illustrated by a simple equation. For this purpose, the level of living may be roughly defined as the total output of goods and services per person. Some output, of course, goes into investment and maintaining the nation's defense, rather than consumption. The output per capita depends on the product of



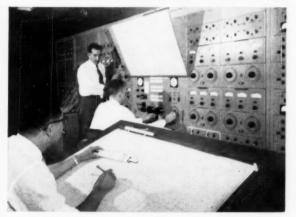
Net National Product reduced to a per capita basis has approximately quadrupled in the last 80 years.



In this same period, the ratio of the labor force to the population rose approximately 25 per cent.



Between 1900 and 1955, the average factory worker's real weekly wages grew about twice as large.



The electric light and power industry's productivity growth rate for 1917–1947 was 4.6 per cent a year-



three factors: the proportion of the population employed; the hours of work per worker; and the output of goods per man-hour.

• From even a cursory review of America's economic progress over the past 50 years, it is obvious that a substantial rise in the amount of goods and services produced in an hour of work has been the basis for the growth in output per capita. The proportion of the population employed has remained fairly constant, except in depression, while hours of work actually declined. Clearly, productivity growth is one of the cornerstones of our national well-being.

High Living Standard

Greater output per man-hour also explains America's higher living standard as compared with that of some other nations. Per capita income in the United States is about twice that of England and three times that of France, nations with a longer past of industrial experience. The proportion of the population in these nations at work is as high as in the United States and their hours of work are often longer. But output per man-hour, according to fragmentary data on comparative productivity, is only about one-half to one-third as great as the level in the United States.

Let us now look more closely at this key factor. Largely because of interest in the human side of technological progress, American statistics about this important force are more comprehensive than those of other nations. One of the most important sources of information is the Department of Labor's Bureau of Labor Statistics, where shortly before the turn of the century, Carroll D. Wright, first Commissioner of Labor, charted the details in his famous investigation, Hand and Machine Labor, of the great transformations of industry that took place in the 19th century. In the midst of the mass production revolution of the 1920's the Bureau began the practise of constructing annual indexes of productivity for individual industries.

Last December, in the record of the Congressional hearings on automation and technological change, the Bureau released its latest study of trends in productivity since 1939 in the manufacturing sector. Besides the Bureau of Labor Statistics' work, the valuable contributions of the National Bureau of Economic Research must be cited. From these sources of information, we can examine, in Commissioner of Labor Statistics Clague's apt phrase, "the golden trace"—the course of America's productivity growth.

Beginning with the important manufacturing sector, we find that output per man-hour in the three decades prior to World War II, 1909–1939, increased at the rate of about 3 per cent a year. The Bureau of Labor Statistics' comprehensive study of productivity change since 1939 reveals some interruption during World War II, but a

The \$3 billion highway program will create heavy manpower needs in the construction industry.

continuation of long-run trend in the post-war period. From 1947 to 1953 the rate of gain averaged between 3.0 and 3.6 per cent a year, a rate no higher than we have experienced in periods of comparable length in the past. Compounding this gain over 40 years or so shows us that the factory worker in 1953 was producing $3\frac{1}{2}$ to 4 times as much per hour as the worker of two generations ago.

The productivity record for the economy as a whole is of great interest. According to a staff report of the Joint Committee on the Economic Report, output per man-hour for the private economy, based on national income estimates covering all service as well as goods producing industries, grew at a rate of about 2 per cent a year over the 1910–1953 period. The trend for the economy was influenced by the shift in the use of the nation's resources as well as by improvements within industries.

A noteworthy aspect of the productivity record was that some growth took place in all periods since the turn of the century. The rate of growth was somewhat more rapid after wartime periods and somewhat slower in depressions. The upward trend over the long run, however, was remarkably persistent.

The American worker and his family have shared, in numerous tangible and intangible ways, in the long term rise of the economy's productivity. The increase in the amounts of goods that can be produced in an hour of work has yielded to labor improvements in living conditions without diminishing the well-being of any other group in the economy.

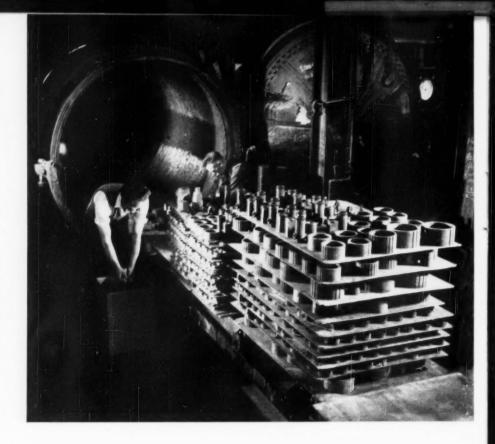
One obvious result has been steadily increasing wages and workers' incomes. In 1900, factory workers earned on the average 22 cents per hour and about \$13 a week. In 1955 average hourly earnings stood at \$1.88 and weekly earnings averaged about \$77 (before taxes) or about \$70 (after taxes for a worker with three dependents). Taking the rise in consumer prices since 1900 into account, we find the factory worker in 1955 earned about twice the weekly average for 1900. A similar story can be told for miners, construction workers, tradesmen, and workers in other sectors of the economy.

Consumer Role

Rising productivity also contributed to the betterment of the worker in his role as a consumer. Stated broadly, the worker to-day spends relatively less for basic goods and more for the amenities of life. In 1901 the worker's family on the average spent only 17 per cent of its income for goods other than food, clothing, and shelter. By 1948 this proportion had risen to 40 per cent. This greater margin implies the satisfaction of a much wider range of interests and needs.

Not only have the goods and services the worker purchases increased in amount and quality, but services he receives indirectly from public agencies, federal, state, and local, have been notably expanded. Educational opportunities,

Continued on page 88



Battery cases, bowling balls and pocket combs have made ebonite (hard rubber) as familiar as the old homestead. Yet this ancient material still has much to offer in both product design and plant equipment. The pictures here, from the Natural Rubber Development Board, spotlight hard rubbers industrial uses. But there are new ways to apply extruded shapes, sheeting and molded parts like those at the right, and in consumer products and military equipment as well.

EBONITE: NEW WAYS TO USE AN OLD MATERIAL

ANNESTA R. GARDNER Industrial Editor

AFTER more than half a century or more of the toughest kind of service in vine-gar plants, paper and textile mills, metalworking factories, and water-treatment plants, many ebonite parts are still going strong. Often, they're removed from service only because product or equipment designs have changed and new shapes are needed.

Now, this hard rubber can point with pride to a record of more than 100 years of service in consumer and industrial products. And it is by no means ready to retire. Indeed, despite the outpouring of new plastics and synthetic rubbers, hard rubber remains a basic material for products ranging from battery cases to chemical pails, from pump parts to clarinets.

Ebonite, aptly named because of its color, is one of several rigid materials made by adding large percentages of sulfur to rubber before vulcanization. Generally, these materials are grouped under the term "hard rubber." But colored high-sulfur rubber is sometimes called vulcanite, and the black material ebonite.

The term "cbonite" is a well-recognized one, defined in standard dictionaries and used both here and in Britain for over a century. Because, however, several companies now use it as a brand identification, the broader term "hard rubber" is

gaining favor. But the term "ebonite" is still helpful in making technical distinctions, and it has an interesting history. It has a much closer connection with ebony than mere color. When black hard rubber was first made—back in the 1840's—it was proposed as a substitute for costly ebony wood. Furniture, jewelry, and combs in carved designs were exhibited at the Great Exposition of 1851 in Britain.

What Has Been Learned

The long history of hard rubber has given industry time to study its performance under all sorts of conditions and to pin down its physical and chemical properties. Hard rubber producers can cite many 50- and 60-year service records to back up their statements about the material. They can prove, for instance, that hard rubber is highly resistant to corrosion at room temperature. Hard rubber pipe can even be buried in soil for years without serious effect. Alkalis and most organic acids leave the material unharmed. When properly made, hard rubber products are non-toxic, and do not affect the color or taste of most food products. Only strong oxidizing agents and a few organic solvents can touch the material under normal conditions.

Hard rubber is one of the few materials which

can be placed under hydrostatic pressure (a thousand pounds or more) and not blister when the pressure is released,

When compounded specially for heat resistance, hard rubber can stand temperatures in excess of 200° Fahrenheit; and, while it is likely to char when exposed to a flame, it does not burn readily. It is a good thermal and electrical insulator.

Hard rubber is produced in sheet, rod, and tube shape, and in cellular or expanded form. A semi-rigid type of ebonite is also obtainable which can be faced with ebonite sheeting and used as a shock-absorbing layer in various types of equipment.

Hard rubber can be molded, punched, and machined, and can be bonded to most metals (though special precautions are required with copper, lead, and aluminum) and to practically all non-metallic materials.

For machining, carbide tools are recommended. Cutting may be done dry, or with water or oil as a coolant. Bending after vulcanization is not generally recommended because the material has an elastic "memory" and tends to relax into its former shape if reheated. However, postformed parts of this type will perform satisfactorily in most cases if used at room temperature.

Lest the hard rubbers sound like the original paragons of virtue, their limitations should also be borne in mind. Like most rubbers, they have some tendency to age—particularly at high temperatures or when exposed to ultraviolet light—and this type of aging affects their electrical properties—notably, surface resistivity. For this reason, hard rubber does best when protected from direct sunlight, and is usually stored in a cool, dark room.

As mentioned above, hard rubber can take a good deal of pressure, and pipe lined with materials like ebonite will withstand as much pressure as the pipe material itself. However, the Natural Rubber Development Board cautions that cast iron pipes, castings, and welded parts must be free from porosity, before they are lined; and rivets, if used, must be set flush with the metal's surface. Furthermore, unless all air is removed from the bonded surface, air pockets may cause trouble (note lining techniques displayed in photographs at right and below).

The surface hardness and rigidity that bring hard rubber many of its best applications can also pose design problems. They make it possible to produce a durable, glossy finish. But these characteristics bring with them a certain degree of brittleness which may not be acceptable in every instance. In these cases, special impact-resistant grades may be needed.

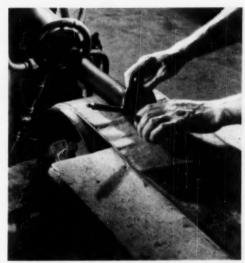
So Many Good Points

These, though, are minor problems when considered in the light of hard rubber's broad utility. For example, in addition to the products mentioned above, and such familiar items as combs and sports equipment, ebonite is used for a variety of valve and pump parts, seals and gaskets, gears and rollers; and for tool handles, musical instruments, housings, cases, and containers. Electrotype blocks, surgical implements, steering wheels, smokers' accessories, photographic equipment (camera parts as well as developer tanks), are also made of this material. It's a staple for water meter parts and plumbing floats, and the standard material for shuffleboard discs.

Hard rubber is moving into brand new areas, too. The fact that it is tasteless and odorless is bringing it new jobs in air conditioning and refrigeration equipment (impellers, for instance); and its strength and stability are finding applications in new types of missiles—in shell positioning rings and other key parts.

Where can you get information on ebonite and other hard rubbers? A fountainhead of information is the Natural Rubber Bureau, 1631 K Street, N. W., Washington 6, D. C. In addition, almost every rubber company and a good many plastics molders in this country are equipped to produce hard rubber parts. Indeed, one of the charms of this group of materials is its ready availability.

Hard rubber is not a product panacea. But this relatively inexpensive, durable material is well worth a second look.



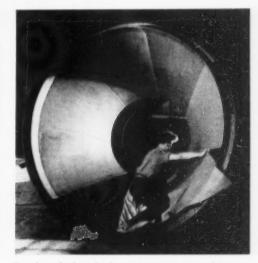
Ebonite rod and tubing are readily extruded in continuous lengths using simple, standard equipment, as this British photograph shows.



Variety of extruded shapes shows formability of this material. The extrusions shown are all part of current production at one British plant.



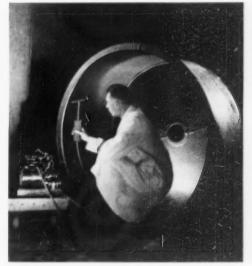
Water won't hurt hard rubber if it is properly compounded. Here, ebonite-covered table rolls are used at wet end of papermaking machine.



Food and chemical processors can gain years of trouble-free service from ebonite-lined tanks if good materials and lining methods are used.



Ebonite lining is applied by standard method but special care must be taken to expel any air that might be caught between rubber and metal.



High voltage testing is final step in production of ebonite-lined vessel. If no flaws are found, it's ready to go to work, should last for years.



"PERSONNEL'S" PLACE ON THE MANAGEMENT TEAM

HERBERT L. MARX, JR.
Personnel Manager, Bayonne Plant, General Cable Corporation

GOOD HUMAN RELATIONS are almost a fetish of articulate management spokesmen, and yet a great many managements are failing to win all the advantages they can from the growing fund of knowledge and skills that are available to them through proper use of personnel managers.

Confusion, or at least lack of clarity as to what the personnel function is, and especially as to how it can be integrated into the policymaking portion of a corporation's management, is responsible. Improved exploitation of personnel knowhow can accomplish a double result which should set off a sort of chain reaction of benefits.

Proper use of personnel people will, first, improve the operation of the company. Second, it will, through giving the personnel manager a more vital job to perform, stimulate him to perform better. This again, of course, will redound to the benefit of the organization as a whole.

Personnel relations is a relatively young and immature profession. Many business enterprises have adopted the function as a permanent part of their organization only in the past ten to fifteen years. There are few common, agreed-upon functions for the personnel department, and indeed there remains among the top managements of many companies a lingering doubt as to the essentiality of the personnel relations function as a separate entity.

This has resulted, understandably enough, in a struggle for status by the personnel specialist. The result has been that he has diverted his The human equation is always a problem with variable answers. How does the personnel manager know where his judgment is best for the employee and the boss. Mr. Marx suggests a program in which the personnel manager is used as an active management member and not as a specialist isolated from the actual planning of company policy.

energies from the tasks set forth to further the business enterprise to a defense of his own position before top management. Many have felt so insecure that they place as much importance on proving their worth to management through detailed argument and report as by actual performance on the job.

Yet this puts the cart before the horse. It is, in effect, a demand for status and authority in advance of, rather than as a result of, genuine contribution to the enterprise. One of the most caustic critics of this kind of thinking is Peter F. Drucker, who states in his *Practice of Management:*

"The constant worry of all personnel administrators is their inability to prove that they are making a contribution to the enterprise. Their preoccupation is with the search for a 'gimmick' that will impress their management associates. Their persistent complaint is that they lack status . . .

"The personnel department generally avoids

the two most important areas in the management of workers: the organization of the work, and the organization of people to do the work. It accepts both as it finds them."

This comment might appear to be overstated and oversimplified. Yet it brings home the hard truth that there must be more attention paid by personnel men to the fundamentals of the human element in the enterprise—how the work is to be done and how people are going to be organized to do it. Successful achievement in these fields by the personnel manager will result in all the status and recognition he could desire.

There is excessive demand on the part of some personnel specialists for recognition and treatment as "professionals." True integration of the personnel man into top management comes only when he is an inextricable part of the top decision-making group: that is, when he is neither an expert who does nothing but "advise" nor one who administers "personnel" matters with an iron hand, but rather a team-member of a team-directed enterprise.

Personnel relations activities are almost always staff or advisory functions; ultimate responsibility for action rests with the line authority, beginning with the top man in the organization. Interestingly enough, the responsibilities for which the personnel manager most nearly approaches line authority are those either unrelated to or only vaguely concerned with workers in the organization. A prime example is public relations. Even such matters as safety and cafeteria management are on behalf of workers, but

are generally unrelated to their work assignment or performance.

As a result of this line-staff division, a seeming dilemma arises in matters such as discipline, promotion, training, and manpower development—"the organization of people to do the work." Should each line supervisor, from foreman up, strive to be a personnel expert, or should the personnel manager have line authority in some of these matters? Actually, the conflict is more apparent than real, for there is a place for *both* the line supervisor (from foreman up to chief executive) and the personnel specialist.

One of the reasons the problem arose in the first place is that, in establishing separate personnel departments, some over-eager managements felt that all problems concerned with human beings could and should be turned over to the so-called "experts" in personnel. But, all management is concerned with getting results from people, and so the theory that the personnel department could have the sole responsibility for handling employee problems has been short-lived. Yet there are those who go to the other extreme and would, for example, place responsibility even for negotiations with the union in the hands of line management.

Is there a more tenable position somewhere between these two extremes? There is, and the

personnel manager need not doubt that there really is a job for him to do.

The personnel manager can always find many channels in which to direct his special knowledge and skills. He can do so as an aid to management - where management needs and wants help. And the easiest and most effective way to find these channels is to seek out the particular problems which concern line management at the moment, rather than to follow a set of standardized personnel principles and try to "sell" some unwanted and unappreciated "improvement."

The personnel manager cannot find his most effective place in the organization if, for example, he operates "by the book" instead of in accord with the needs of the management group of which he is a member. His text book on the personnel function will include sugges-

tions for all the problems he may later face in the plant. But this is no reason why he should attempt to install plans, mechanically, to meet with all these problems in the company.

If absenteeism is not a matter of great concern in the company, for instance, it would be folly to initiate an elaborate program for reporting and controlling it. As the forms pile up on the desks of his superiors, they may admire his thoroughness, but they will not appreciate his efforts if they consider the problem of little importance to them.

Contrarily, if absenteeism is a problem in the efficient operation of the plant, and one whose gravity he feels management should be aware of but is not, it is obviously his duty to himself as well as to the organization to point this out convincingly—and to offer a solution.

That is a basic requirement for any contribution the personnel manager may find it desirable to offer—he must not only point up a problem but offer a realistic solution. Especially when the personnel man opposes a proposal concerning his area of management, it is not enough to point out that the proposed action will not solve the problem, or may create new and worse ones, as the case may be. If he is to perform as part of management, he must suggest a better alternative.

There are circumstances under which the personnel manager will be supremely content to see first-line supervision handle grievance matters smoothly without his intervention, or to witness intelligent progression of management trainees without his prodding, or to see a wide variety of other so-called "personnel" matters resolved without his help. But in seeking to find those areas in which the organization is weak and

But it seemed in this case that the men must know *how* to do the job.

The personnel department in this instance found that the men did, indeed, know how to do the job. What they didn't know was why it was so important that it be done with high accuracy. The solution—and it worked out excellently—was to bring in engineers to explain to them, in a few meetings, the result of inaccurate work, when the product was put in use by the final customer, and the obvious effect on company reputation.

There should be no concern, in other words, about responsibility for personnel relations. As much as possible, it is the job of every management person; but there will always be opportunity and challenge for the personnel manager if he will consciously seek to help management solve the problems and make the decisions which constantly present themselves.

One of the constantly challenging problems which the personnel manager faces is that of interpreting to management (1) the restrictions of the labor contract with its maze of past practises and binding precedents, and (2) the current attitudes and feelings of the employees at all levels. For he must perform both tasks fearlessly to be of the greatest service to management, yet he runs the recurring danger of being

accused of "taking the union's side" or of being "afraid to stand up to them."

This might be shrugged off as an unavoidable occupational hazard. But this is insufficient, for it is imperative that the personnel manager have the confidence and support of top plant management—even at moments when he is strongly advising against contemplated action.

Without such confidence, the personnel man's lot may be a very difficult and unhappy one. Suppose he finds that a certain category of employees - say service or maintenance people -are underpaid in proportion to rates prevailing in the area and the industry, and that he feels this disproportion will eventually result in loss of the best personnel in that category. It is his duty to point this fact out and to recommend some means of adjusting the rates. If the men have not made a joint

issue of the rates, the personnel man may seem to other members of management to be playing the role of advance man for the union. Only if he has already made clear his conception of himself as a full member of management can he have his warnings taken seriously and acted upon.

Often an alternative may be proposed. Say the Continued on page 96

"It's not the company, after all. I just don't like myself."



"There are circumstances under which the personnel manager will be supremely content to see first-line supervision handle grievance matters smoothly without his intervention."

needs his stimulation, the personnel man can find ample expression for his talents and energies.

An example comes to mind of a department composed of highly skilled machine operators, almost craftsmen, who were making errors in following exacting specifications. The problem might have been met with a text book solution, involving tighter supervision, some form of penalty or incentive, or more training for the men. In the fast growing American economy, alert management knows that markets are shifting targets. To help you draw a head on the rich industrial markets that have developed during the past decade, DR&MI presents here an exclusive guide to 90 key industrial markets. The guide is based on the new U.S. Census of Manufactures which is not yet completely published.



DEVANEY PHOTOGRAPH

WHERE TO SELL

IN THE NEW INDUSTRIAL MARKETS

THOMAS KENNY

Marketing Editor

Complete portrait of the new industrial market which has developed in the post-war years. The new U.S. Census of Manufactures, the first one since 1947, has been specially analyzed by Dun's Review and Modern Industry. The result is a detailed guide to 90 Key Industrial Markets, similar to that done in the September 15, 1949 issue of Modern Industry on the earlier Census.

Since the previous Government plant-by-plant tabulation, the American industrial market has taken giant strides ahead. Shifts in the pattern of industrial income and spending call for serious overhauling of your sales efforts if your target is the industrial market.

Industrial plants (manufacturing establishments) are now 20 per cent more numerous than in the early post-war years. They employ 13 per cent more workers and spend considerably more money than before, as measured by dollar value added by manufacture which is up 56 per cent. Consequently, the returns to the skilful industrial marketer are more plentiful than they ever were before.

Along with the growth of the entire market, significant geographical shifts have occurred. Of the ten top industrial markets, only three hold the same ranking as they did in the 1947 study. The most spectacular change has been the

swift rise of Los Angeles, which now ranks third of all industrial markets (in terms of value added by manufacture) and is topped only by New York and Chicago.

Other industrial markets have undergone substantial change since 1947. For example, Kansas City which ranked as number 29 in the previous study is now number 20. Flint-Saginaw has moved up from 35 to 19. Dallas-Fort Worth has taken a large leap from 37 to 26.

Wilmington, Allentown, Madison, Albany, and Columbus have all moved into the primary market classification. Meanwhile, Toledo and Charlotte have moved out. Toledo slipped down from number 34 to number 44. Worcester has fallen in rank from number 21 to number 33, Lancaster from 22 to 30, and Akron from 30 to 37. For a complete list of leaders and laggards see pages 54 and 55.

And when you approach the industrial market-place by industries as well as by geography, you uncover important changes in buying power. It all adds up to a not-to-be-missed opportunity for management:

- To re-examine sales efforts and results
- To allocate sales manpower and promotion efforts most profitably
- To re-check quotas with actual key markets' buying power

• To move quickly into new untapped markets All of this and more can be done with the wealth of new data coming from the new Census of Manufactures.

Healthy profit margins are the result of greater productivity in selling—gaining maximum results from a minimum expenditure of time and money. Seasoned sellers to industrial markets carefully aim their selling and promotional efforts at the areas with prime prospects and heavy buying power.

Markets Are Concentrated

New information produced by this study reveals that 78 per cent of the industrial market is concentrated in 90 key market areas. In fact, the 20 leading areas, in terms of dollar value added, account for about half of the total national market.

Throughout this study, value added by manufacture is used as the standard to judge the marketing importance of areas and industry groups. Although some companies may want to refine their market analysis by using data on the number of plants or of employees (these data are provided for each of the 90 key markets), most marketing experts consider dollar value added as the most reliable gage of the buying power of an industrial market.

The key industrial market information on pages 54 and 55 provides a complete guide for sellers to industry to focus their sales efforts with minimum spending for sales manpower, branch offices, and travel expense. (See map facing page 36.)

The 90 key industrial market areas, originally developed by MODERN INDUSTRY, are composed of logical groupings of counties. Each group, as a market, accounts for at least one-tenth of 1 per cent of the total industrial market. You'll find definitions of these market areas on page 56.

To assist management in aiming sales ammunition, the 90 key industrial markets are divided into primary and secondary markets. Each of the 40 primary markets represents at least 0.5 per cent of the total market. While the 50 secondary markets are those with between 0.1 and 0.5 per cent of the over-all market.

If you have a tight rein on your sales expense budget, you can start with the forty primary markets. Later, you can add the fifty secondary markets as your sales program really starts rolling and you achieve national distribution.

If your product has a broad application in industry, you'll get the most value from these new facts on market areas in planning your 1957 sales program. But you can put the new data to work right now. If your sales figures for the first half of 1956 show volume in one area, as translated into a per cent of total volume for the period, as considerably below the key market rating, there may very well be much business you are missing.

Also, if your figures for any one region, translated into percentages, surpass considerably the key market total, you may be doing an outstanding selling job. Or again, you may be neglecting other key market areas. Similarly, the changes from 1947 (last columns on pages 54 and 55) are worthwhile criteria for judging your selling performance during the important post-war years.

Growth Industries

In the period between 1947 and 1954, the value of all manufactured goods rose 56 per cent. Even after adjustment for price hikes, this comes to a hefty rise of about 40 per cent. Testifying to the rise in productivity, this advance in output was scored with an increase of only 13 per cent in the number of workers during the same period.

Which industries are growing fastest, thus presenting the most profitable opportunities for industrial markets?

USE THIS MARKET STUDY TO:

- Compare sales and market potential
- Prepare sales forecasts for 1957
- Improve sales territory breakdowns
- · Discover new growth markets

INDUSTRY'S POST-WAR GROWTH

	Numb Emplo (Thous 1954	yees	Per Cent Change 1947-1954	Value Ad Manufo (Millio 1954	acture	Per Cent Change 1947-1954
ALL INDUSTRIES, TOTAL	16,135	14,300	+12.8	116,001	74,339	+ 56.0
FOOD AND KINDRED PRODUCTS	1,650	1,442	+14.4	13,453	9,023	+ 49.1
TOBACCO MANUFACTURES	95	112	-15.2	988	641	+ 54.1
TEXTILE MILL PRODUCTS	1,022	1,232	-17.1	4,672	5,323	- 12.2
APPAREL, RELATED PRODUCTS	1,197	1,082	+10.6	5,033	4,440	+ 13.4
LUMBER AND WOOD PRODUCTS	649	642	+ 1.1	3,178	2,520	+ 26.1
FURNITURE AND FIXTURES	339	316	+ 7.3	1,952	1,346	+ 45.0
PULP, PAPER, AND PRODUCTS	529	453	+16.8	4,542	2,913	+ 55.0
PRINTING AND PUBLISHING	802	715	+12.2	6,194	4,249	+ 45.8
CHEMICALS AND PRODUCTS	741	631	+17.4	9,150	5,345	+ 71.2
PETROLEUM AND COAL PRODUCTS	217	212	+ 2.4	2,569	2,013	+ 27.6
RUBBER PRODUCTS	247	258	- 4.3	1,903	1,299	+ 46.5
LEATHER AND LEATHER PRODUCTS	357	383	- 6.8	1,637	1,533	+ 6.8
STONE, CLAY, AND GLASS PRODUCTS	494	462	+ 6.9	3,810	2,305	+ 65.3
PRIMARY METAL INDUSTRIES	1,119	1,158	- 3.4	9,405	5,733	+ 64.1
FABRICATED METAL PRODUCTS	1,040	973	+ 6.9	7,766	4,920	+ 57.8
MACHINERY (EXCEPT ELECTRICAL)	1,543	1,552	- 0.6	12,313	7,834	+ 57.2
ELECTRICAL MACHINERY	951	796	+19.5	7,399	3,860	+ 91.7
TRANSPORTATION EQUIPMENT	1,709	1,174	+45.6	13,734	5,842	+135.1
INSTRUMENTS, RELATED PRODUCTS	270	245	+10.2	2,104	1,140	+ 84.6
MISCELLANEOUS MANUFACTURES	700	462	+51.5	4,199	2,060	+103.8

The growth in total industry was outpaced by that in the automobile industry. Producers of transportation equipment more than doubled their output while employees increased only 46 per cent. The production of electrical machinery, instruments, and related products nearly doubled while the number of employees rose only slightly. Makers of non-electrical machinery increased their output 57 per cent while employees actually decreased in number.

The electronics industry has been one of the fastest pacemakers in the post-war period. Producers of electronic tubes multiplied their output nearly five-fold while their employees more than doubled. The growth in this line has been one of the factors for the healthy gains in Southern California (Key Market 3).

However, during the same years, other industries were losing ground, according to the new Census of Manufactures. The value of textiles output slipped 12 per cent, reflecting price cuts, import competition, and changes in consumer spending. Other industries which did comparatively poorly in the post-war years were leather and apparel.

Measured either by the number of workers or the value added by manufacture, the food industry is no longer the nation's largest, as it was back in 1947. Instead, the transportation equipment industry has moved into first place. Its fastest growing segment has been the aircraft industry, which actually employed more workers than did the auto-makers, according to the latest Government count.

For further information on the size of particular industries, see the table "Industry's Post-war Growth" above.

Despite the steady growth of industry in the post-war period, the recent expansion was considerably less explosive than in the previous period, 1939–1947. Under the impetus of wartime needs, industry increased its number of plants 39 per cent between 1939 and 1947, compared with a rise of 20 per cent in the 1947–1954 period.

In the earlier period, manufacturing employment rose 52 per cent in contrast to the increase of only 13 per cent in recent years. After eliminating price inflation, dollar value added by manufacture nearly doubled during the war years and rose approximately 40 per cent from 1947 to 1954.

Another interesting angle of the industrial market—the size of plants—is also covered in the new Census. While the total number of plants rose 15 per cent, those with 100 or more employees increased only 10 per cent. However, small plants with less than 20 employees rose 22 per cent. Only part of this sizable gain can be attributed to changes in the methods of taking

GUIDE TO 90

EY REGIO	TRIAL MARKETS	NUMBER OF ESTABLISHMENTS (PLANTS)	NUMBER OF EMPLOYEES (THOUSANDS)	BY MANUFACTURE (\$ MILLIONS)	\$ VALUE % OF NATIONAL TOTAL	% GAIN IN \$ VALUE—1954 COMPARED TO 1947
	BOSTON	6,602	381.3	2,501.4	2.16	32.4
,	BRIDGEPORT, NEW HAVEN, WATERBURY	2,952	216.0	1,578.2	1.36	44.5
NEW	PROVIDENCE, R.I., FALL RIVER, NEW BEDFORD,					
	MASS.	4,309	235.4	1,036.0	1.13	12.0
ENGLAND	WORCESTER	1,469	103.0	650.2	0.56	21.7
STATES	HARTFORD, NEW BRITAIN, BRISTOL	1,185	132.9	886.9	0.76	68.7
JIMILI	SPRINGFIELD, HOLYOKE	1,021	82.2	547.9	0.47	40.8
	PORTLAND, AUGUSTA, BANGOR, ME.	1,385	67.8	369.7	0.32	18.0
	MANCHESTER	807	42.0	213.5	0.18	24.5
	PITTSFIELD	220	25.8	197.7	0.17	44.4
	KEY MARKET TOTAL	19,950	1,286.4	6,671.3	7.11	7.1†
	NEW YORK, N. E. NEW JERSEY	51,628	1,740.2	13,073.6	11.27	40.6
	PHILADELPHIA, CAMDEN	8,166	549.5	4,056.0	3.50	46.2
MIDDLE	PITTSBURGH	2,401	305.0	2,489.3	2.15	46.0
	BUFFALO	1,844	199.8	1,668.5	1.44	63.0
ATLANTIC	ROCHESTER	983	111.3	916.3	0.79	78.1
STATES	lancaster, york, harrisburg	1,695	125.1	782.0	0.67	47.1
JIMILI	SYRACUSE	843	75.0	604.6	0.52	59.9
	ALLENTOWN, BETHLEHEM, EASTON	1,007	90.1	585.0	0.50	62.2
	ALBANY, SCHENECTADY, TROY	684	71.7	583.7	0.50	80.0
	BINGHAMTON, ELMIRA	401	58.5	407.2	0.35	73.7
	ERIE	664	55.6	392.0	0.34	20.8
	UTICA, ROME	506	43.0	329.5	0.28	41.4
	SCRANTON, WILKES-BARRE	1,114	67.7	317.9	0.27	51.3
	TRENTON	447	37.5	295.0	0.25	41.5
	READING	670	49.0	291.6	0.25	26.7
	JAMESTOWN ALTOONA	330	23.4	169.5 158.9	0.15	54.4
	JOHNSTOWN, ALTOONA KEY MARKET TOTAL	73,701	3,631.7	27,120.4	23.37	46.3
		13,513	944.4	7,877.1	6.79	42.5
	CHICAGO		562.0	4,730.5	4.03	62.4
	DETROIT	6,221 4.011	322.2	2,684.3	2.31	60.2
EAST	CLEVELAND MILWAUKEE	2,410	211.6	1,727.3	1.49	44.3
	CINCINNATI	2,001	183.1	1,614.6	1.39	76.9
NORTH	FLINT, SAGINAW	576	113.3	1,021.6	0.88	108.9
CENTRAL	YOUNGSTOWN	867	119.0	973.5	0.85	50.4
	DAYTON	1,106	122.7	947.6	0.82	44.8
STATES	LANSING, KALAMAZOO	947	91.4	930.0	0.80	78.9
	INDIANAPOLIS	1,116	101.7	835.0	0.72	72.8
	GRAND RAPIDS	1,212	90.1	740.3	0.64	63.2
	CANTON	804	78.8	629.9	0.54	65.5
	AKRON	675	85.9	593.0	0.51	28.8
	MADISON, WIS., ROCKFORD, ILL.	831	67.6	584.1	0.50	77.3
	SOUTH BEND	810	76.6	581.6	0.50	62.2
	COLUMBUS	793	72.7	580.1	0.50	108.7
	TOLEDO	714	62.0	536.5	0.46	36.3
	anderson, kokomo, muncie	529	67.9	520.0	0.45	54.3
	GREEN BAY, OSHKOSH, SHEBOYGAN	1,041	57.9	445.3	0.38	43.0
	MOLINE, ILL., DAVENPORT, IOWA	557	51.5	421.0	0.36	62.8
	PEORIA	316	38.3	366.5	0.32	30.6
	FT. WAYNE	309	32.5	276.5	0.24	23.3
	EVANSVILLE	220	32.7	236.3	0.20	70.1
	SPRINGFIELD, DECATUR, ILL.	296	25.2	210.4	0.18	53.0
	OTTAWA, LASALLE, PERU, IND.	147	17.6	161.3	0.14	63.1
	KEY MARKET TOTAL	42,122	3,628.7	30,224.3	26.05	55.1

KEY INDUSTRIAL MARKETS

KEY INDUSTRIAL MARKETS —BY REGIONS		NUMBER OF ESTABLISHMENTS (PLANTS)	NUMBER OF EMPLOYEES (THOUSANDS)	VALUE ADDED BY MANUFACTURE (\$ MILLIONS)	\$ VALUE % OF NATIONAL TOTAL	% GAIN IN \$ VALUE 1954 COMPARED TO 1947
	ST. LOUIS	3,152	254.7	2057.1	1.77	58.7
WEST	MINNEAPOLIS, ST. PAUL	2,263	134.9	1084.8	0.94	52.0
	KANSAS CITY	1,476	107.9	995.4	0.86	112.4
NORTH	DES MOINES	589	42.8	315.6	0.27	87.8
CENTRAL	WICHITA	529	50.4	306.9	0.26	194.0
	OMAHA	476	28.4	208.1	0.18	130.2
STATES	CEDAR RAPIDS	198	18.4	150.4	0.13	84.9
	KEY MARKET TOTAL	8,683	637.3	5,118.3	4.41	76.7
	BALTIMORE	1,940	191.2	1,544.6	1.34	72.7
COLUMN	GREENSBORO, DURHAM, RALEIGH	1,145	105.2	746.6	0.64	50.4
SOUTH	CHARLOTTE	1,415	121.0	510.9	0.44	3.2
ATLANTIC	WILMINGTON	860	67.7	598.0	0.52	76.0
	ATLANTA	1088	79.0	537.1	0.46	100.0*
STATES	CHARLESTON, HUNTINGTON, W. VA.,					
	ASHLAND, KY.	378	40.5	413.4	0.36	55.6
	WHEELING, W. VA., STEUBENVILLE, OHIO	388	50.5	373.8	0.32	44.0
	RICHMOND	388	30.7	288.1	0.25	40.9
	Greenville, Spartanburg	401	53.0	227.5	0.20	-5.7
	NORFOLK, NEWPORT NEWS	307	28.7	194.4	0.17	69.4
	ROANOKE, LYNCHBURG	360	39.8	176.4	0.15	70.4
	DISTRICT OF COLUMBIA	489	20.2	158.1	0.14	59.6
	COLUMBUS	190†	19.5†	127.6†	0.11†	27.7†
	SAVANNAH	181	13.3	153.2	0.13	60.6*
	KEY MARKET TOTAL	9,530	859.3	6,049.7	5.05	51.4
	houston, beaumont	1,608	104.5	1,105.0	0.95	96.5
	DALLAS, FT. WORTH	1,979	123.2	875.0	0.75	127.1
SOUTH	LOUISVILLE	822	85.3	846.1	0.73	72.9
CENTRAL	BIRMINGHAM	618*	53.8*	385.4*	0.32*	40.0*
	NEW ORLEANS	870	53.9	- 375.5	0.32	68.4
STATES	MEMPHIS	637	42.2	336.3	0.29	66.1
	CHATTANOOGA	583	49.5	306.8	0.26	88.0
	TULSA	520	28.8	217.5	0.19	200.0*
	BATON ROUGE	137	18.8	248.2	0.21	86.9
	NASHVILLE	461	30.5	203.8	0.18	54.5
	KNOXVILLE	324	27.9†	121.3†	0.10†	10.3†
	MOBILE	234*	14.6*	114.1*	0.10*	25.0*
	KEY MARKET TOTAL	8,793	633.0	5,135.0	4.40	81.9†
	los angeles	14,032*	610.4*	4,900.0*	4.22*	138.4*
	SAN FRANCISCO, OAKLAND	8,955*	227.8*	1902.4*	1.64*	63.1*
FAR	SEATTLE, TACOMA	2,200	106.4	787.0	0.68	77.4
WEST	PORTLAND	1,799	56.6	453.7	0.39	44.4
	DENVER	906	33.7	238.8	0.21	47.0
STATES	SALT LAKE CITY	651	26.0	245.8	0.21	128.0
	KEY MARKET TOTAL	28,543	1,060.9	8,527.7	7.35	100.7
TOTAL OO	KEY MARKET AREAS	191,322	11,694.7	88,796.3	77.77	47.5
TOTAL-70	KEI MAKKEI AKEAS	171,322	11,074.7	00,770.3		47.5

the Census. The middle-sized group, those plants with from 20 to 99 employees, rose least of all —only 8 per cent.

Of course, if your product is applicable to only one or a few specific industries, you'll need more detailed information on the geographical distribution of key markets for these particular industries. This data is being made available almost daily by the U.S. Department of Commerce.

For example, if your main market is the industrial truck and tractor industry, you'll want to know that there are 244 manufacturing establishments in this line in the United States and that the largest concentration is in the East

North Central States, and that the state with the most plants (29) is Ohio. You'll find this information, and much more, on spending for materials, capital expenditures, and other data for this industry listed by states in Advance Report MC-35-4.3.

Similar information is already available for scores of other industries from aircraft to vacuum cleaners. You can obtain order blanks which list these reports and bulletins from the new Census of Manufactures from your local U.S. Department of Commerce Field Office, or by writing to the Bureau of the Census, Washington 25, D.C. The information now available is preliminary, as were the data on which this

study is based, and may be modified by later revisions.

For further information on the uses of Government data, see the article "The Meaning of the New Business Census" by Robert W. Burgess in the June 1956 issue.

Definition of "manufacturing establishment": In the Census of Manufactures, data are collected from each manufacturing establishment engaged in the mechanical or chemical transformation of materials into new products. A manufacturing establishment usually consists of a single physical location where such industrial operations are performed; for example, a mill or factory.

90 KEY INDUSTRIAL MARKET AREAS ARRANGED BY KEY CITY

Some of the key market areas are based directly on the Census Bureau's standard metropolitan areas, but most have been modified. Some areas are consolidated to reflect realistic distribution patterns. Many important industrial counties, not included in the Government listing of principal areas, have been grouped and listed under the key city or cities. See the map facing page 36 and the market comparisons on pages 54 and 55.

Akron: Summit County, Ohio

Albany: Albany, Rensselaer, Schenectady Counties, N.Y.

Allentown: Lehigh, Northampton Counties, Pa.; Warren County, N.J.

Anderson: Delaware, Grant, Howard, Madison Counties, Ind.

Atlanta: Cobb, DcKalb, Fulton Counties, Ga.

Baltimore: Baltimore City; Baltimore, Anne Arundel Counties, Md.

Baton Rouge: East Baton Rouge Parish, La.

Binghamton: Broome, Chemung Counties, N.Y.

Birmingham: Jefferson County, Ala.

Boston: Essex, Middlesex, Norfolk, Plymouth, Suffolk Counties, Mass.

Bridgeport: Fairfield, New Haven Counties, Conn.

Buffala: Erie, Niagara Counties, N.Y.

Canton: Columbiana, Stark, Tuscarawas Counties, Ohio

Cedar Rapids: Linn County, Iowa

Charleston: Cabell, Kanawha Counties, W.Va.; Boyd County, Ky.

Charlotte: Cabarrus, Catawba, Cleveland, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Rutherford Counties, N.C.

Chattanooga: Bradley, Hamilton Counties, Tenn.; Whitfield County, Ga.

Chicago: Cook, Du Page, Kane, Lake, Will Counties, Ill.; Lake County, Ind.

Cincinnati: Butler, Hamilton Counties, Ohio; Campbell, Kenton Counties, Ky. Cleveland: Cuyahoga, Lake, Lorain Counties, Ohio

Columbus: Muscogee County, Ga.; Lee County, Ala.

Columbus: Franklin County, Ohio

Dullas: Dallas, Tarrant Counties, Texas

Dayton: Clark, Greene, Miami, Montgomery Counties, Ohio

Denver: Denver County, Colo.

Des Moines: Black Hawk, Polk, Marshall Counties, Iowa

Detroit: Macomb, Oakland, Wayne Counties, Mich.

Erie: Crawford, Erie, Venango Counties, Pa.

Evansville: Vanderburgh County, Ind.

Flint: Bay, Genesee, Saginaw Counties, Mich.

Fort Wayne: Allen County, Ind.

Grand Rapids Kent, Muskegon, Ottawa Counties, Mich.

Green Bay Brown, Fond du Lac, Manitowoc, Sheboygan, Winnebago Counties, Wis.

Greensboro Alamance, Durham, Forsyth, Guilford, Wake Counties, N. C.

Greenville: Greenville, Spartanburg Counties, S.C.

Hartford: Hartford County, Conn.

Houston: Harris, Jefferson Counties, Texas

Indianapolis Marion County, Ind.

Jamestown: Chatauqua County, N.Y. Johnstown: Blair, Cambria Counties,

Kansas City: Wyandotte County, Kansas

Knoxville: Blount, Knox Counties, Tenn.

Lancaster: Dauphin, Lancaster, Lebanon, York Counties, Pa.

Lansing: Calhoun, Ingham, Jackson, Kalamazoo Counties, Mich.

Los Angeles: Los Angeles, Orange Counties, Calif.

Louisville: Jefferson County, Ky.; Clark, Floyd Counties, Ind.

Madison: Dane, Rock Counties, Wis.; Winnebago County, Ill.

Manchester: Hillsborough, Merrimack, Rockingham Counties, N.H.

Memphis: Shelby County, Tenn.

Milwaukee: Kenosha, Milwaukee, Racine Counties, Wis.

Minneapolis: Anoka, Dakota, Hennepin, Ramsey Counties, Minn.

Mobile: Mobile County, Ala.

Moline: Henry, Rock Island, Whiteside Counties, Ill.; Clinton, Scott Counties, Iowa.

Nashville: Davidson County, Tenn.

New Orleans: Jefferson, Orleans, St. Bernard Parishes, La.

New York: New York City; Nassau, Rockland, Suffolk, Westchester Counties, N.Y.; Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Union Counties, N.J.

Norfolk: Newport News, Norfolk, Portsmouth Cities, Va.

Omaba: Douglas County, Neb.

Ottawa: La Salle County, Ill.

Peoria: Peoria, Tazewell Counties, Ill.

Philadelphia: Bucks, Chester, Delaware, Montgomery, Philadelphia Counties, Pa.; Burlington, Camden, Gloucester Counties, N.J.

Pittsburgh: Allegheny, Beaver, Washington, Westmoreland Counties, Pa.

Pittsfield: Berkshire County, Mass.

Portland: Androscoggin, Cumberland, Kennebec, Penobscot, York Counties, Maine Portland: Clackamas, Multnomah, Washington Counties, Ore.; Clarke County, Wash.

Providence: Bristol, Norfolk Counties, Mass.; Bristol, Kent, Newport, Providence, Washington Counties, R.I.

Reading: Berks County, Pa.

Richmond: Richmond City, Va.

Roanoke: Danville, Lynchburg, Roanoke Cities; Campbell, Roanoke Counties, Va.

Rochester: Monroe County, N.Y.

St. Louis: St. Louis City; St. Charles, St. Louis Counties, Mo.; Madison, St. Clair Counties, Ill.

Salt Lake City: Davis, Salt Lake, Utah, Weber Counties, Utah

San Francisco: Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Solano Counties, Calif.

Savannah: Chatham County, Ga.

Scranton: Lackawanna, Luzerne Counties, Pa.

Seattle: King, Pierce, Snohomish Counties, Wash.

South Bend: Elkhart, La Porte, St. Joseph Counties, Ind.

Springfield: Macon, Sangamon Coun-

Springfield: Hampden, Hampshire Counties, Mass.

Syracuse: Cayuga, Onondaga, Oswego Counties, N.Y.

Toledo: Lucas County, Ohio

Trenton: Mercer County, N.J.

Tulsa: Tulsa County, Okla.

Utica: Herkimer, Oneida Counties, N.Y.

Washington: District of Columbia Wheeling: Brooke, Hancock, Marshall,

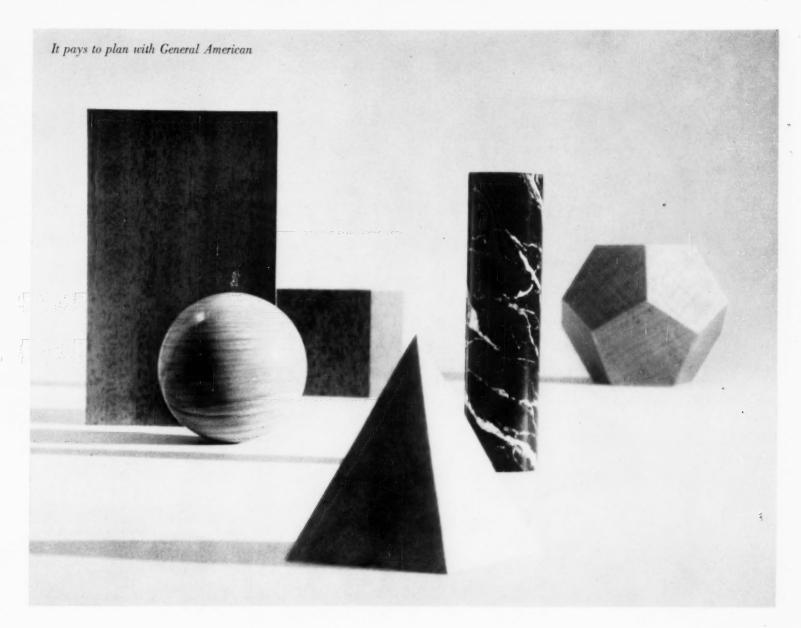
Ohio Counties, W.Va.; Belmont, Jefferson Counties, Ohio

Wichita: Reno, Sedgwick Counties, Kans.

Wilmington: State of Delaware; Cumberland, Salem Counties, N.J.

Worcester: Worcester County, Mass.

Youngstown: Mahoning, Trumbull Counties, Ohio; Lawrence, Mercer Counties, Pa.



a whole new world of profit opportunities with GEN°

General American's new material offers unexplored possibilities for packaging, furniture, building and a host of other uses!

Now, anything that can be photographed can be duplicated on Gen—a completely new idea in decorative plastic sheeting. By means of an exclusive process, General American's Plastics Division now offers sheeting and formed parts that bear perfect reproductions of leather, marble, wood grain, fabric—any material, pattern or design.

Gen-715, the first of a series, can be vacuum formed on conventional equipment or produced to your specifications, by General American. It

is available in standard widths up to 40 inches and in any desired lengths-thicknesses from .040 inches to .187 inches

Where can you use GEN? In appliance interiors and housings? Product presentation and packaging? Furniture? Wall and ceiling tile? Advertising specialties? Three-dimensional paneling? Displays and signs? Where can you use Gen? Find out. Write to General American for samples and descriptive literature.



GENERAL AMERICAN TRANSPORTATION CORPORATION

135 South La Salle Street, Chicago 90, Illinois . Facilities unmatched anywhere: injection, compression, extruding and vacuum forming, reinforced plastics, painting and assembling.

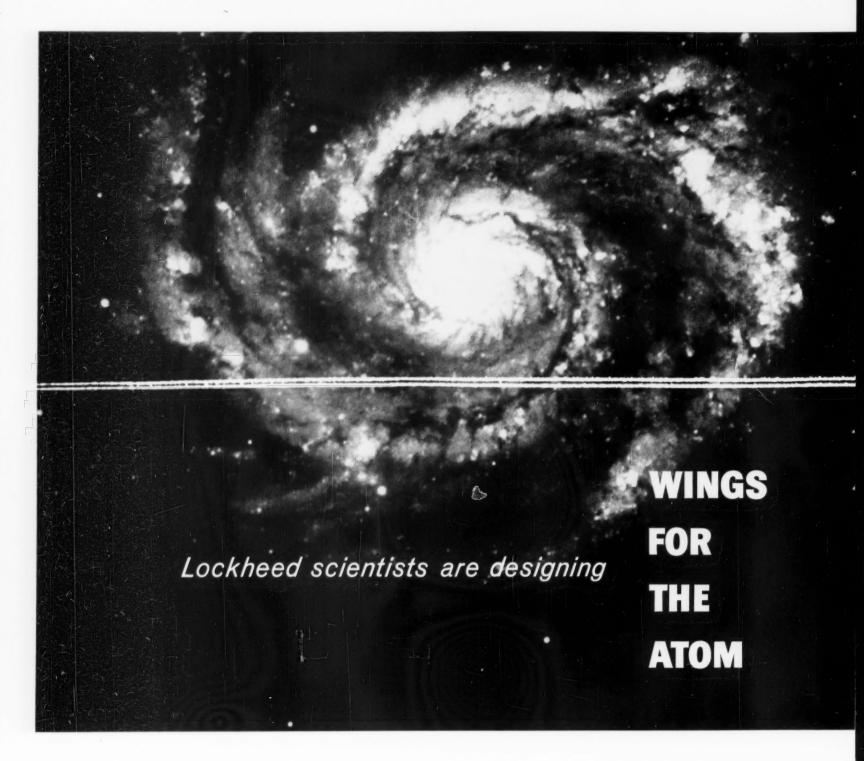










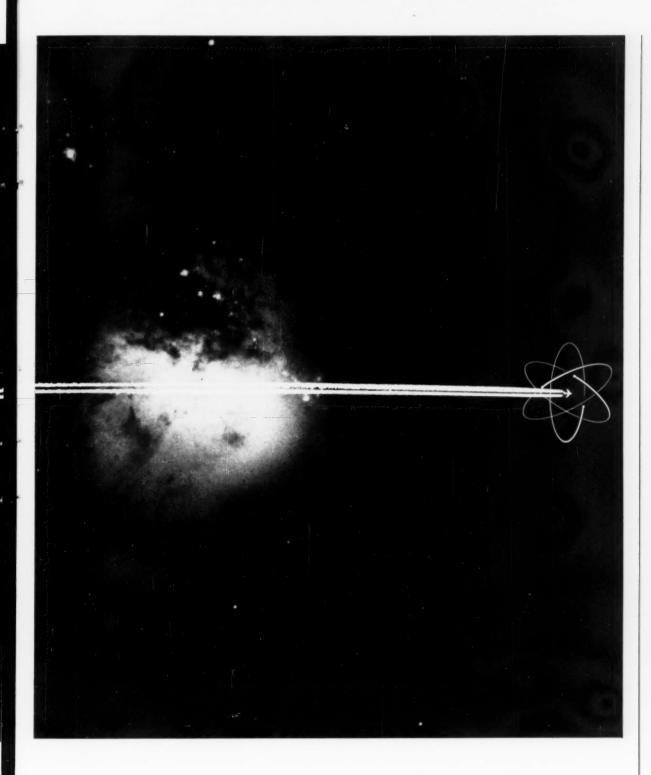


Domesticating the atom to serve mankind has intrigued science for over a decade. One top priority application, secretly under way for several years at Lockheed: developing a nuclear-powered plane as different from present types as a supersonic jet is from the first stick-and-wire biplane.

IMAGINE A GIANT AIRCRAFT SOARING ALOFT, NOT WITH TONS OF GASOLINE, BUT WITH A URANIUM FUEL SUPPLY NO BIGGER THAN A HANDFUL OF GRAVEL. EVENTUALLY, SUCH A PLANE-OF-THE-FUTURE — WITH THIS SCANT FUEL SUPPLY—WILL GIRDLE THE GLOBE NON-STOP BETWEEN SUNRISE AND SUNSET.

More than a dream, this incredible aircraft is now being developed by Lockheed for the U.S. Air Force despite problems of propulsion, structures and materials, thermodynamics, crew survival, producibility and maintenance unique in aviation. Old concepts are being shelved, traditional solutions rejected. The kind of aeronautical advances that once took a generation of research are now being telescoped into a few months, even weeks.

Soon several hundred nuclear scientists and engineers from Lockheed's Georgia Division will move to the North Georgia mountain country. There on a vast site—some 40 miles from U.S. Air Force Plant No. 6 at Marietta, operated by Lockheed—will be built the nation's largest facility for development of atomic-powered aircraft. The exact status today of the atomic plane is still



a military secret. But this much can be said: The first nuclear aircraft to blaze across America's skies may not look essentially different from conventional planes, but functionally it can only be described as revolutionary. And after the nation's military requirements are met, the transports then available to you as a traveler will rank among the truly exciting events of aviation history.

YOU YOURSELF MAY THEN TRAVEL ABOARD A NUCLEAR-POWERED AIRLINER—CROSSING THE U.S. IN AN HOUR OR TWO, OR SPANNING THE ATLANTIC IN LESS TIME THAN IT NOW TAKES TO FLY FROM CHICAGO TO NEW YORK.

Look to Lockheed for Leadership

LOCKHEED

Aircraft Corporation

California Division, Burbank, Calif. Georgia Division, Marietta, Ga. Missile Systems Division, Van Nuys, Palo Alto, and Sunnyvale, Calif. Lockheed Air Terminal, Burbank, Calif. Lockheed Aircraft Service, Ontario, Calif.

LOCKHEED'S NEWS COLUMN

Detection of Heart Disease—our nation's #1 killer—is being speeded with aid of Lockheed's battery of super-fast electronic brains that are correlating the studies sponsored by the Nash Cardiovascular Foundation. Ten minutes' work sandwiched between computations at the Missile Systems Division gives the cardiologist complete and accurate harmonic analysis of electrocardiograms that speed his vital research immeasurably...

Radiant heating, first time used in any airliner, will be one of the many new creature comforts of Lockheed's up-coming propjet Electra. Heating wires in walls and ceilings work like electric blankets to give no-draft, no-hot-spot comfort...

Atomic plane concept on a recent cover of Newsweek was not based in any way on Lockheed's Georgia Division ANP (Aircraft Nuclear Power) Project. That plane will really surprise you...

25,000 Lockheed stockholders in every state of the union will learn in mid-August that sales reached approximately \$345 million for the first half of 1956. In a like period 20 years ago sales were less than one million . . .

Univac's newest cousin Si (for Scientific) will be the top quiz kid in the battery of analogue and digital brains at Lockheed's Missile Systems' Computer Center. Si, first Model 1103A Univac in use, "thinks" up to 100 times faster than other computers...

A nationally-known Los Angeles physician, after periods of intense nerve strain, goes to the airport, buys a round-trip ticket to New-York on a Super Constellation, spends a quiet day at the Waldorf-Astoria, and comes back on the next flight. Says: "It relaxes me"...

Hercules C-130 performance data just released show that the USAF strong-man can haul 20 tons of cargo right on the contrails of a fast jet tactical force. 100 mph faster than present combat transports, Hercules climbs fully loaded to 2500 feet altitude in just one minute.

Why TECUMSEH Compressor Crankcases Are MICROHONED

"On Tecumseh compressors, we Microhone the piston bores. This gives us a running seal between pistons and bores which prevents gas leakage and eliminates the need for piston rings! Believe me, it takes a real combination of accuracy and functional surface finish to get results like that... and only Microhoning has given us that combination!"



(Tecumseh Products Company, Tecumseh, Michigan, is the world's largest producer of refrigeration compressors. Precision engineered and processed these units are hermetically sealed before leaving the factory.)



OTHER JOB DATA:

MATERIAL
OPERATION Diamond finish-bore
OPERATIONS One
STOCK REMOVAL0007" to .001"
FINISH
TOLERANCES Diametric
HONING CYCLE18 seconds, includi-

"Here's our twin cylinder crankcase. The two piston bores in each case are opposite one another in the vertical plane, but they lie in two different horizontal planes. We simultaneously Microhone both bores in each crankcase, using a horizontal type machine with two opposing spindles."

"Although all of our crankcases are similar in design, the bores vary in diameter — 1.312", 1.375", 1.500" and 1.625". Two fixtures on a two-position rotary indexing table let us Microhone one crankcase while another is being loaded. To run different bore diameters we just change the tools and gage rings. Switchover time is about five minutes."

Let a Micromatic Field Engineer show you how Microhoning will give you better functional finishes, closer tolerances and higher production.

| Please have a Micromatic Field Engineer contact us.
| Please send literature and case histories on Microhoning.

NAME

TITLE

COMPANY

CITY

ZONE STATE

MICROMATIC HONE CORP.

8100 SCHOOLCRAFT AVENUE - DETROIT 38, MICHIGAN



NEW SAFETY CONCENTRATION:

A NEW concentration-saturation type of safety promotion, which cut accident frequency 29 per cent in a one-industry tryout in 1955, will be given a nation-wide, across-the-board application in the twelve months beginning Sept. 1.

The technique is to pick a single important cause of accidental injuries and deaths, and to concentrate major efforts for a year on preventing or reducing accidents from that cause.

The National Safety Council, whose Mining Section conducted last year's trial campaign, found that its single-objective promotion not only was successful in sharply reducing the target-type of accidents, but had a strong carryover effect which improved performance in regard to other hazards, as well.

The Council will launch a yearlong National Campaign for Prevention of Falls next month, with its slogan "Falls Hurt—Be Alert!" Originally conceived as an industrial campaign, the new effort has had its scope broadened to include organized labor, off-the-job, home, public transportation, farm, and school and college safety activities, as well as street and highway accident-prevention.

Falls have been chosen as target of this first nationwide intensive drive because of their gravity as a cause of death and serious injury, and because there is a strong do-it-yourself aspect to their prevention. Unlike some hazards, almost all falls can be prevented by extra caution and knowledge on the part of

the individual. Thus, members of any group involved in the new campaign—rather than just their safety leaders—can take an active part in it.

Falls, says the National Safety Council, account for more accidental deaths than any other cause except traffic accidents. They rank second only to mishaps in handling objects as a source of disabling work injuries. Falls are costly accidents, too. Falls from different levels frequently result in death or serious injury, and compensation payments are higher than those for other accidents.

What may surprise executives who don't get to see accident data very often—and may involve more



Accident control will have a new twist for
the next year—an intensive campaign to
prevent injuries from a single cause: falls.
Pilot program in mining industry last year
cut accident frequency from target cause
by 29 per cent, saving lives, limbs, money.

YEAR-LONG FIGHT ON FALLS

of them than might otherwise think of getting into the new national campaign—is that more than half of all injuries to office workers are caused by falls. One of the campaign aids will be a 16 mm movie on the hazards of falls in offices.

The occupational phase of the National Campaign for Prevention of Falls will be on an organized basis, with registration of participating concerns, record-keeping, and awards. As in the case of last year's mining industry trial run, it will be open to any company whether a member of the Council or not.

Enrollment may be made on an official registration form available from the National Safety Council at 425 North Michigan Avenue, Chicago 11, Ill. Companies enrolling will be required to provide records of injury experience from falls covering 1955 and 1956 to the nearest convenient date. Those achieving a reduction in falls of 50 per cent or more, or having no injuries chargeable to falls for a year, will be granted certificates of achievement. There will also be certificates for supervisors whose work groups achieve either goal.

The Council will service the campaign with suggested plans and scheduling for local plant programs, and with posters, illustrated booklets, five minute safety talks, banners, sound slide films, instruction cards, data sheets, and illustrated flip sheets for a talk on falls.

Because of the pilot campaign in the mining industry, 15 miners in the United States and five foreign countries are now alive who would otherwise have succumbed to injuries caused by "falls of ground," an industry term for the collapse of a mine roof or cave-in of its walls. Another 245, who were "due," statistically, for injuries, are hale and sound of limb as a result of the campaign.

The 250 mines involved enjoyed an average 29 per cent reduction in frequency of injuries from that cause, and 122 of them cut the toll by 50 per cent or more, or maintained accident-free records in 1955. Participating mines were in this country, Canada, Cuba, South Africa, the Philippine Islands, and Cyprus. One Cyprus mine's achievement in cutting accident frequency 54 per cent indicates it may soon be safer to work in a mine on that island than to walk on its streets.

While the coming national campaign grew out of the inspired hunch that led mine safety leaders and the National Safety Council to conduct last year's test, the rifle-notshotgun technique has had an extensive workout in at least one major industrial concern.

Mills of the United States Steel Corporation, then in the Carnegie-Illinois operating subsidiary, developed in the 1940's what was called "Single Objective Safety" as a means of organizing accident control in each department or other work unit. The target on page 60 is from the booklet put out to describe the plan in detail. U. S. Steel says the plan is still in use.

How MICROHONING Makes a Gas-Tight Running Seal Without Piston Rings

A leak-free, running seal between bores and pistons—without the use of rings—is possible only when the processing method generates diametric and geometric accuracy and the required functional surface finish. These characteristics are simultaneously obtained by the Microhoning process. Here's how:



The sticks of abrasives in the tool form an abrasive "cylinder" and are fed out radially with equal pressure in all directions. High spots and tight areas in the bore are abraded first



2 The long abrasive sticks cut only on the crests of wavy or snaky surfaces until the bore has the same diameter throughout its full length.

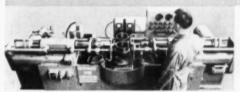


3 The combination of tool motion (rotation and reciprocation) and feed pressure fractures the abrasive grits that have become dull, and new sharp edges are formed; the clean constant cutting action of every stroke on

the full bore length consistently generates the desired surface finish.

One of the exclusive advantages of Microhoning is its ability to produce whatever functional surface characteristics are required for maximum product performance. Microhoning's cross-hatch pattern, with its myriad of minute intersecting "valleys," furnishes an excellent surface for retention of lubrication.





"Here's one of two Micromatic Model 523-2 machines used on the compressor crankcase job. Tecumseh uses a total of 18 Microhoning machines on other vital processing operations."

The principles and applications of Microhoning are thoroughly explained in an informative 16mm., 30-minute sound movie, "Progress in Precision." We'll be glad to reserve a print for your use. Just tell us on the coupon the date you'd like to see it.

on	(date	100	
Please send literature on Microhonia the following application:	ng. I am interested in		
NAME			
TITLE			
COMPANY			

MICROMATIC HONE CORP.

8100 SCHOOLCRAFT AVENUE - DETROIT 38, MICHIGAN

CASES IN SUCCESSFUL DISTRIBUTION - One of a series

Famous

"RIGHT MOVE"

Reduces Warehousing-Distribution costs 25% for BEECH-NUT, Using LEHIGH SYSTEM



BEECH-NUT PACKING Co., leading marketer of food products—coffee, peanut butter, baby foods—aims for this paramount objective: to warehouse and distribute its products as efficiently and at closest possible consumption points to metropolitan New York-New Jersey areas. All at lowest practical cost!

Before now, Beech-Nut leased fixed space and used common carriers for its complex warehousing-distributing operations in this area.

SPACE NEEDS EXPANDED-CONTRACTED 100% IN 30 DAYS. Due to seasonal packing requirements, space demands changed as much as one hundred per cent in 30–60 day intervals. Since Beech-Nut makes and stocks 85–90 different packs and varieties; ships 35–40 items per order—this created a considerable problem of selection and segregation from stocks. For short periods, and despite a fixed space facility, even more space had to be engaged.

EXCESSIVE COSTS TO KEEP ADEQUATE STOCK. Further trucking expense was added to consolidate some shipments. Because of the problem of rigid limits to storage and handling space, production from Canajoharie, N.Y. was often restricted or slowed to adjust to warehouse capacities. This was costly and impractical. An improved system needed.

Beech-Nut wanted an efficient way to reduce costs; an uninterrupted flow of products to consumers; adequate stocks and on-the-spot distribution right to dealer's shelves.

LEHIGH DEMONSTRATES BETTER METHOD; SOLVES PROBLEM. Beech-Nut and Lehigh studied the problem, seeking a solution. A "true cost" analysis of their operating figures, showed that Lehigh could effect sub-

stantial savings the first year and give the more dependable distribution Beech-Nut wanted.

CUSTOMER GETS FIRST SAVING; PAYS ONLY ON "PER USE" BASIS. How possible? Because Lehigh, as a public merchandise warehouse, offers the economic advantages of "pooled" services. All customers share it. But, the customer is charged only on a per use basis. Lehigh provides more economical storage, more economical labor and trucking services than the manufacturer can himself provide. The customer gets more action . . efficiency for his distribution dollar!

NO SALES LOST; PROMPT, SURE HANDLING. For Beech-Nut, Lehigh processes from 250–350 selected orders per day. It serves their customers in a radius of about fifty miles from Lehigh's Jersey City and Newark Warehouses. All orders received are processed (clerically) same day; are physically selected, prepared and marked for shipment the following day. Loaded on Lehigh trucks for fast delivery within forty-eight hrs. from receipt of order! Waste time-money saved in actual distribution costs . . . far more dependability, plus a new flexibility now enables Beech-Nut to keep shelf stocks loaded at all times, with increased sales potentials.

EXTRA BENEFITS GO TO LEHIGH'S CUSTOMER. Plus the first gain of economic storage and better trucking, Beech-Nut (or the customer), takes advantage of lower freight rates from point of origin to Lehigh's warehouses—with lower common carrier rates in effect on palletized operations. Result? Further savings.

Lehigh strives to help its customers in many ways to become *hetter* marketers. Perhaps we can serve you equally as well? There could be "good" news when you investigate the Lehigh story. Write for more information, won't you?



LEHIGH WAREHOUSE & Transportation Co., Inc.

98-108 FRELINGHUYSEN AVENUE, NEWARK 5, N. J.

SUBSIDIARIES: LACKAWANNA WAREHOUSE CO. INC. — LEHIGH TANK TERMINAL — LEHIGH WAREHOUSE & TRANS. CO. - ATLANTA — NEWARK AIR SERVICE. INC. — LEHIGH WAREHOUSE & TRANS. CO. - NEWARK — LEHIGH WAREHOUSE & TRANS. CO. - ELIZABETH — LEHIGH MARINE WAREHOUSE CO.

INC. - BROOKLYN — LEHIGH TRANSPORTATION CO. INC. — LEHIGH WARE-HOUSE & TRANS. CO. - PORT NEWARK — VIRGINIA BONDED WAREHOUSE & TRANS. CO. — LEHIGH HORSEHEADS WAREHOUSE CORP. — LEHIGH ATLANTIC TERMINAL WAREHOUSE CORP.

New ideas in glass, plastics, and metals that can help you do a better job

Models help plan model plants

It's so easy to overlook the little flaws in plant layout and construction, which can mean costly, builtin inconvenience for years to come. Aisles that are not quite wide enough for free movement of materials, production offices that block major travel lines, or machines that are set at odd angles, can interfere with handling and production and lead to much waste of time and

Because these flaws are not easy to find on the usual blueprint or flat templet layout, many companies are turning to three-dimensional scale models as an aid to planning new plants and charting revisions of older ones (see photographs at right). Three-dimensional models make visualization much easier, and they can be used to train machine operators and service personnel (see photographs at right) as well as in original planning and scheduling of machine installation.

Quite a few companies build their own models, but those not equipped to do so will find nearly a score of companies ready to supply scale models of standard equipment (generally, at prices ranging from \$1 to \$5 a unit) and to build complete model plants from the architects' blueprints.

Those who have used 3-D models are enthusiastic about them, but they do offer these two cautions:

· Make the model complete and accurate, but don't make it any more elaborate than it needs to be. Fancy nameplates and decorations and too-careful reproduction of detail add to costs, and may even decrease the usefulness of the model by diverting attention from the important area.

• Keep the model up to date. Make sure that every change in the blueprints or in the plant itself is reflected in the model. Errors are likely to be compounded if you don't. It's better to have no model at all than one which is out of date.

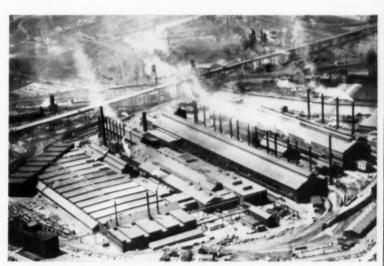
Plastics show stoppers

New formulations that offer greater toughness and heat resistance were featured by many exhibitors

at this year's National Plastics Exposition. In the limelight were polyethylene and polystyrene, particularly the heat-resistant and highimpact types.

Latest additions to the styrene family are American Cyanamid's methylstyrenes. Cyanamid claims they have excellent heat resistance, and notes that methylstyrene-acrylonitrile copolymers have high impact

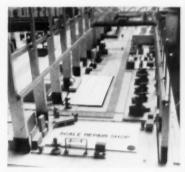
Continued on page 64



Advance planning with three-dimensional models (below) helped Republic Steel fit new structures into this heavily built-up Cleveland plant area, and sidestep errors that might lead to cramping or waste of valuable space.

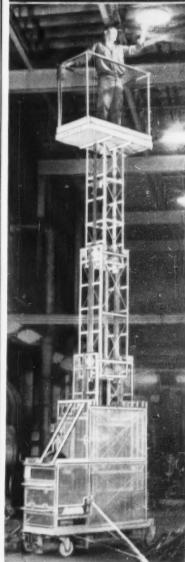


Clearance between buildings is quickly checked on this scale model.



Equipment installation is speeded by pre-planned layouts like this.

THE MAN WHO FEELS SAFE WORKS BETTER conon ENGINEERED FOR STRENGTH STABILITY AND SAFETY



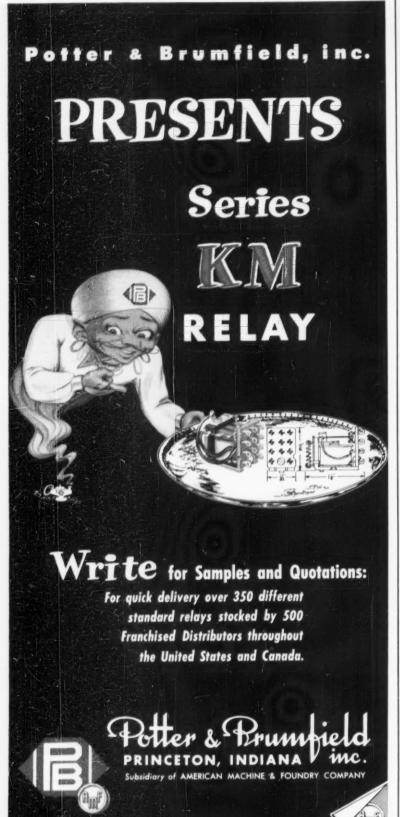
Safety is our first consideration in building Hi-Reach Telescopers.

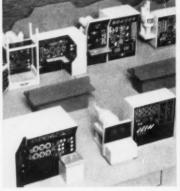
During the past quarter of a century of making Hi-Reach Platform Telescopers, our engineers have constantly improved the mechanical construction to obtain maximum stability, smooth time-saving lifting action, and safety.

Standard Models available from 10'-9" to 35 ft. high, and custom-built units as high as 100 ft. if you like.

ECONOMY ENGINEERING CO. EST. 1901 4516 W. Lake St., Chicago 24, III.

ECONOMY ENGINEERING CO 4516 W. Lake St., Chicago	24
Name	
fiem	
Address	
City	State





Model shop helps Greer Hydraulics engineers explain maintenance and test procedures for jet engines, is used as adjunct to service schools and design symposia. It's another way to put scale models to work.

Index of polyethylene's popularity is the number of big-name companies that now make, or are preparing to make, this versatile plastic. Among the entries are Bakelite, Catalin, Celanese, Dow, DuPont, Eastman Chemical, Hercules, Koppers, Monsanto, Phillips Petroleum, and U. S. Industrial Chemicals.

Of particular interest are the new "linear" or "low-pressure" polyethylenes which promise greater rigidity and heat resistance than the polyethylenes now in use, yet retain most of the good qualities of present-day materials (see June 1954, page 44).

Plants are now being built to make linear polyethylene in quantity, using several different processes (two American and one German have been announced so far), and reports based on tests of pilot plant materials are enthusiastic. For instance, Chicago Molded Products says that linear polyethylene sheeting can be vacuum-formed into trays, housings, and panels that hold their shape far better than similar items made of present-day material. It predicts that linear polyethylene will open many opportunities in product design as well as packaging and display. [Note: More news of plastics on pages 70 and 71.]

Precision casting offers new ideas

The wax-and-plaster casting method, borrowed from the jewelry industry during World War II to meet demands for intricate aircraft, electronic, and ordnance parts, has blossomed into a whole family of methods that are finding a place in





polyethylene bags cut shipping damage and

"Save us from 20% to 50% in packaging time"



Packaging our miniature and sub-miniature electronic connectors for shipment was a real problem a few years ago... the containers were breaking open in shipment, spilling loose parts, damaging insulators, hopelessly mixing up components," relates Calvin Zehr, general manager, Dage Electric Company, Inc., Beech Grove, Ind. "Polyethylene ended our problems. It's tough, durable, flexible and resilient. Despite the sharp edges on many of our connectors, we have not had a bag tear or rip in more than five years of use! Also, the package tends to act as resilient padding, protecting against the shocks of shipment."

From tiny parts to big products, film made of Bakelite Brand Polyethylene is doing a big job of cost-cutting and product protection. Find out how you can benefit. Call your packaging supplier, or write to Dept. RU-42.

Polyethylene bags supplied by **Dura-Lee Corporation**, Kansas City, Mo.



"An experienced operator heat-seals hundreds of bags per hour. Sealing tightly protects silver-plated parts from tarnishing. Another advantage is the 'unslick' surface of the bags that makes handling and stacking easy."



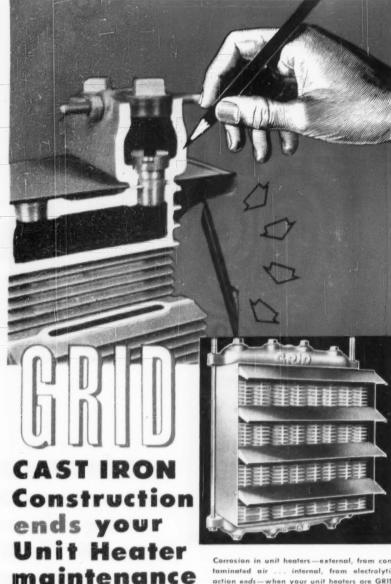
"We also store many of our parts in large polyethylene bags ... as many as 5,000 pieces to a bag. Total weight may exceed 20 or 30 lb. so one can see that the bag material has to be sturdy. And transparency aids quick identification of contents and inventorying."

It pays to package in film made of...

BAKELITE COMPANY,

A Division of Union Carbide and Carbon Corporation 130 East 42nd St., New York 17, N.Y. The term Bakelite and the Trefoil Symbol are registered trade-marks of UCC





Corrosion in unit heaters—external, from contaminated air . . . internal, from electrolytic action ends—when your unit heaters are GRID cast iron construction. Here's why—GRID heating sections are made of high-test cast iron . . .

no external corrosion from acid or other fumes present in many industrial plants.

All metals in contact with steam are similar . . . no electrolytic action internally . . . no internal corrosion.

GRID construction ends your unit heater maintenance problems—because GRID will operate on steam pressures up to 250 P.S.I. . . . 450° temperature . . no pressure-reducing valves needed. No soldered, brazed, welded or expanded connections . . . a specially designed threaded nipple provides a leak proof joint (see illustration).

GRID design gives you maximum heating performance because—GRID provides more air changes at lower outlet temperatures . . . carefully selected motor speeds and fan capacities positively deliver warm, comfortable air in ample volume to floor level . . . no wasted heat through stratification.

GRID installations save you money as GRID requires no maintenance . . . is practically self-cleaning (note wide fin spacing in illustration). GRID provides long service life . . . units installed in 1929 are still operating. No ordinary unit heater approaches GRID'S record for continuous trouble-free heating service.



Manufacturers Since 1883 • WAUSAU, WISCONSIN REPRESENTATIVES IN ALL PRINCIPAL CITIES

all sorts of fabricated products.

Today, there is an Investment Casting Institute, and there are at least half a dozen different investment casting, or precision casting, processes. Though differing in materials used and investment (moldmaking) procedures, they all permit casting of intricate parts—even those with undercut sections—with good surface finish and reproduction of surface detail.

Among the newer precision casting processes are Corning Glass Works' Glaseast technique (pictured below); the Shaw process, a British development now licensed to Lebanon Steel Foundry; and the Ellis process, a plaster mold method now being used by Howard Foundry.

Each of these new techniques, like the older methods, has its limitations. But, taken together, they mean that it is now possible, at relatively low cost, to reproduce intricate parts in a wide range of metals with good surface finish and faithful adherence to specifications.

Copper says "Can do"

The specifications called for absolutely straight extrusions over 26 feet long, with cross sections larger than any previously made; and sheet rolled to half the commercial tolerance. Could it be done? General Bronze Corporation thought it

could, and enlisted the aid of the Copper and Brass Research Association and four leading members of the industry. Result: a green light on plans for the first bronzesheathed skyscraper, the Seagram building, now being erected in New York.

Quite aside from its unusual design, the building is important to industrial users of copper alloys because it is demonstrating how much can be done with such familiar but sometimes neglected materials as architectural bronze, and it is providing much new data on fabrication and application.

In brief

New stainless steels, of the lownickel, high-manganese type, are beginning to catch on, the American Iron and Steel Institute reports. Known as types 201 and 202, these nickel-saving steels are, in most respects, much like the wellknown 301 and 302. But there are a few differences worth noting. For example, some modifications are required in deep drawing techniques.

The AISI says types 201 and 202 can be welded, show good resistance to atmospheric corrosion, and will resist scale at temperatures to about 1,500° Fahrenheit. The new steels contain approximately 18 per cent chromium, 5 per cent nickel, and 7½ per cent manganese (opposed



Glass powder molds for precision casting eliminate many steps involved in conventional techniques. Wax pattern (left) is dipped into fine glass powder slurry (to provide smooth interior surface), then coated with coarser grains (right) until desired wall thickness is built up. Firing in oven removes wax and cures mold. Then cavity is ready to receive casting metal.

APPLYING RECORDAK MICROFILMING TO BUSINESS ROUTINES-No. 19 in a series



Easy to keep track of 550,000 Lions with Recordak Microfilming

At Lions International Headquarters, Chicago, complete facts about 12,525 Lions Clubs in 75 countries are on Recordak Microfilm-ready for immediate reference in Recordak Film Readers.

Hours are saved daily in answering Club inquiries about memberships, anniversaries, and Lions Club activities the world over. Consider just the latter . . . picture the bottleneck if paper records had to be searched: in a single year Lions Clubs successfully completed 170,230 separate activities boosting community betterment, sight conservation and a host of other worthy causes.

> But Headquarters - with the aid of Recordak Microfilming - has the whole story at its finger tips . . . can forward facts and figures promptly, which leads to unified, progressive action.

> > "Recordak" is a trademark

Recordak Microfilming also saves \$15,600 per year in filing space. An estimated 3,900 sq. ft. was saved in Lions International's new headquarters by putting the Lions history on Recordak Microfilm. And this action, too, protects vital records as never before against misfiling and other losses.



Only another example, this, of the way Recordak Microfilming is cutting costs for more than 100 different types of business, thousands of concerns.

A valuable free booklet, "Short Cuts That Save Millions," shows how it can trim your costs, too-let you take up to 80 pictures for 1¢; do away with manual record keeping on job after job.

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(Subsidiary of Eastman Kodak Company)

originator of modern microfilmingand its application to business routines

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RECORDAK CORPORATION

(Subsidiary of Eastman Kodak Company) 415 Madison Avenue, New York 17, N. Y.

Gentlemen: Please send free copy of "Short Cuts That Save Millions.

Position Company



vacuum cleaner gives you the service of SIX machines



It's almost like magic the way this all-purpose Tornado series 80 vacuum cleaner does the job. Generating 325 m.p.h. suction speeds, it makes short work of chips, dust, water and oil. The versatility will startle you! A slight twist of the motor unit and it converts to five different cleaners. No matter what your cleaning problems may be, if it is now done with air, brushes, brooms or rags, it can be done faster and better with Tornado.

> Write for Catalog 660 and an "in plant" demonstration now.

ELECTRIC MFG. CO. Chicago 40, Illinois

5106 North Ravenswood Avenue

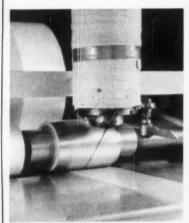


to the classic 18 per cent chrome-8 per cent nickel).

Flexible tubing that is strong and water-tight, yet can be bent by hand without flattening, will hold its shape, and can be straightened again as needed, is made in a variety of materials. There are combinations of fiber, paper, and lacquered steel; lead-coated steel and caper; and various combinations of stainless steel, copper, aluminum, ashestos and glass fibers. Developed in Europe, this Plica tubing is now being produced in the U.S. by The Flexaust Company, Division of Callahan Zinc-Lead, in sizes from 3/8 to 2 inches (ID). Suggested uses: electrical conduit, water lines, air ducting, pipe insulation.

Service labels, adhesive-backed stickers for recording performance and maintenance data, are a popular aid to servicing of plant equipment and keeping track of service costs. When supplied by the equipment-maker, they can help keep his name in front of the user, build good will, and increase the likelihood of reorders (assuming, of course, that the equipment performs satisfactorily).

Manufacturers of a wide variety of products now supply these labels free of charge. Two of the newest are a Load Tap Changer Record for transformers, supplied by GE; and a Service-Score Sticker, offered by Leschen Wire Rope. It's worth checking your suppliers to make



New sealing method for polyethylene plastic film is said to permit operating speeds up to 500 feet a minute. Developed by Bakelite Company, the new technique extrudes a continuous molten "bead" that acts as the sealing medium. It requires little pressure, and it eliminates the need for heating the film itself.

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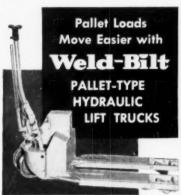
EWEL CASE

of Set Screw Ideas

Hopper-Fed Set Screws and special mechanism is one of many Setko developments to help manufacturers cut costs and improve production. A "Jewel Case" full of such unique set screws is being sent on loan to executives interested in furnishing samples to engineers for test ideas and development. Write for Jewel Case Bulletin ervine full details.



We Specialize in Solving Puzzling Set Screw Problems.



Easy-entry booster rollers, Multi-Easy-entry booster rollers, Multi-Stroke fast-lift operation, acceler-ator-type lowering pedal, Anti-kick-back Safety Handle, front wheel equalizer — these and other Weld-Bilt features promise long laborsaving service on your single or double pallet-moving operations. Check all the advantages — write for bulletin No. LT854.

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WEST BEND EQUIPMENT CORP. MATERIALS HANDLING ENGINEERS

303 Water Street, West Bend, Wisconsin



Fashionable fork truck

Taking a tip from the auto industry, Clark Equipment Company is bringing out a new, high-styled line of fork trucks in addition to its regular models. Featuring a fully automatic transmission, emergency fuel tanks, foam rubber seats, self-adjusting brakes, and a balanced swing-up hood, the line now includes gas models in capacities from 2,000 to 5,000, and will shortly be extended to higher capacities and to electric models.

sure you're getting all those you can use.

Steel is making news in a good many fields these days. In addition to the new stainless steels (see above), there are structural steel bolts that are 40% stronger than any previously used, vacuum-cast forging ingots, and glass-coated smokestacks to meet tough corrosive conditions.

The bolts, made by Standard Pressed Steel Company, have a minimum rated tensile strength of 230,000 pounds p.s.i., and a minimum shear strength of 130,000 p.s.i. First use is in Convair delta wing jet interceptors.

Vacuum-cast forging ingots, offering higher-quality steel for jet engine parts, high-temperature bearings, and other equipment that must stand unusual stresses, are another steel "first." They're being produced on an experimental basis at U.S. Steel's Duquesne Works.

The glass-coated smokestacks, an outgrowth of A. O. Smith's glasslined tanks, are said not only to provide far greater service life, but also to reduce construction costs since, A. O. Smith claims, they weigh a good deal less than conventional stacks designed for similar service.

More news on page 70

How ALCOA uses Flexowriters.

for Integrated Data Processing



FLEXOWRITER

PROGRAMATIC

- · SALES ORDER PREPARATION TIME REDUCED
- . SPEED AND ACCURACY IN CUSTOMER SERVICE GREATLY INCREASED

Using Flexowriter automatic writing machines, Aluminum Company of America prepares customer orders with greater speed and accuracy. In addition, it means up-to-the-minute balancing of orders against raw material requirements, inventories, plant work leads and shipment schedules.

Here's how it works: An order is received at one of ALCOA'S sales offices throughout the country-equipped with Flexowriters. The order is typed on the Flexowriter which automatically produces a by-product punched paper tape. This tape is transmitted to ALCOA'S Production Planning Division in Pittsburgh where the order is allocated and transmitted to a particular plant.

Another advantage of Flexowriter is that the constant customer data may be reproduced automatically at the time the order is typed. ALCOA is one of hundreds

> of Flexowriter users in business, industry and government, saving time by mechanizing their data processing with Flexowriter punched paper tape. Flexowriters are available in 5, 6, 7, or 8-channel tape and/or edge-punched card models. Mail the coupon now for complete information.





COMMERCIAL CONTROLS CORPORATION

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Cut 1/3 in truck miles



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your trucks the SHORTEST WAY every trip. The time gas used by your drivers looking for unknown streets will buy a hundred maps like Hearne's Street Map of your city and county area.

Map or your city and county area.

Printed in six colors; street names are in big, black type, and instantly spotted with Hearne's patented, automatic Street Finder. (See border)

Over 100,000 truck owners use Hearne maps

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HEARNE BROTHERS

America's Largest Manufacturers of Commercial and School Maps

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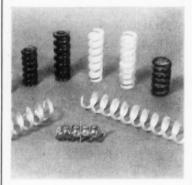
If in your operation you use salesmen, our city-county street maps might save your men considerable time. Test after test conclusively proves that this type personnel will make more calls more often if you make it convenient. Our city-county street maps locate instantly and mechanically for your salesmen, any street address in any American city. We will promptly mail one of your secretaries a brochure.

NEW MATERIALS

Engineering with plastics

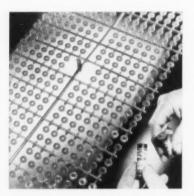
It may be a while before allplastic houses are spicing the landscape from coast to coast. But plastic springs, washers, valves and switches like those described below are ready to go to work right now. And the fact that the all-plastic house pictured at the right can be built-even on a test basis-is an

indication of the tremendous progress in design and fabrication of plastics. The house will be made of modular, molded plastic floor-wallroof sections, cantilevered from a central core. Its site: Monsanto Chemical Company's exhibit at Disneyland, in California. Completion date: 1957.



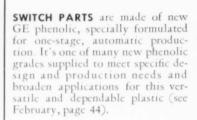
PLASTIC SPRINGS that offer corrosion resistance and low thermal and electrical conductivity plus dimensional stability are being made at the Bureau of Standards by winding polyester resin-soaked fibers, encased in flexible plastic tubing, around a mandrel, and then ovencuring them to shape.

WASHERS, three hundred at a time, thirty thousand an hour, are molded of Tenite polyethylene for use as battery seals. High production rate, flexibility that permits force fitting and assures a tight seal, electrical properties and corrosion resistance make plastic good choice for parts





TOUGH FILM, with a tensile strength of more than 15 pounds per inch of width in a thickness of only 41/2 mils is made by combining polyester film with polyethylene. It has a high burst strength, resists penetration by air and moisture vapor, can be heat-sealed and printed. It's a 3M product.







PLASTIC VALVES replace metal in Milton Roy pumps designed for low pressure, moderate temperature applications. Made of Goodyear Plio-Tuf (modified styrene) resin, valves cost less to produce, can handle a wider range of chemicals, will stand liquid flow rates up to 70 gallons an hour.



SLIP RING ASSEMBLIES can now be had with rings and leads of nylon, Teflon, Kel-F, or glass-reinforced polyester resins to meet the varied requirements of electronic equipment. They're good examples of how plastics can be engineered for specific jobs. These are made by Airflyte Electronics.

ELECTRICAL TAPES, made by impregnating glass cloth and polyester fiber mats with epoxy resins, meet Class B insulation requirements, have good dielectric strength and high volume resistivity. They're sold under the Scatcheast brand by Minnesota Mining and Manufacturing Company.





OPTICAL ELEMENTS can be engineered in plastic. Prismalume lightcontrol elements, molded of Rohm & Haas *Plexiglas* acrylic resin, focus most of the light downward, while diffusing enough across the ceiling to eliminate glare. This one will be used in Holophane *Realite* fluorescent fixture.

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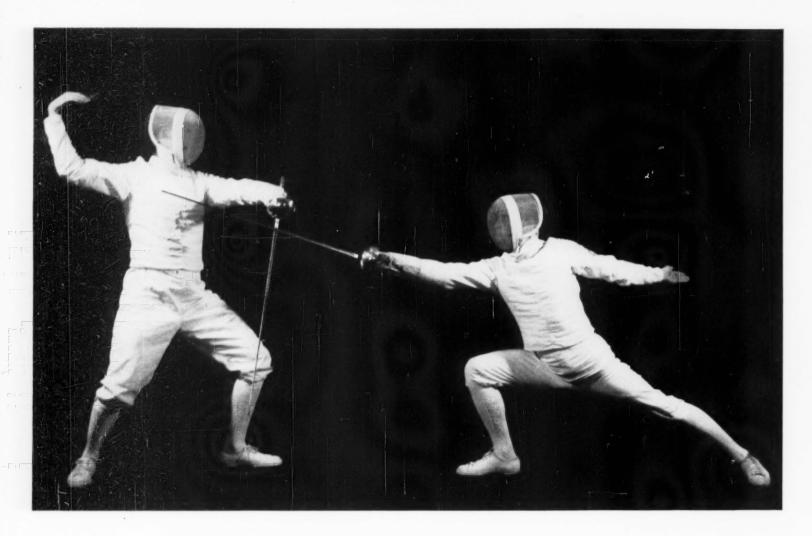
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Greater productivity results because walking and standing are eliminated. All records FLOW into position at the same level, directly in front of the operator who is comfortably seated. Eye and body fatigue are reduced...unnecessary physical labor and drudgery eliminated.

Gone are the constant stooping and bending to use lower drawers...the reach and stretch for the higher ones. Variable lighting, shadows and "no place to work" are things of the past. Improved employee relations follow from the better working conditions. Personnel turnover is reduced.

Why not get full particulars *now* on how these recordshandling machines can be applied to your business. Simply write Room 1806, 315 Fourth Avenue, New York 10, and ask for the booklets listed.

Remington Rand

DIVISION OF SPERRY RAND CORPORATION

Frademar



Robot-Kardex*

...saves up to 30% on posting time ... up to 59% on space ... a touch of the finger and any one of 4,000 sets of visible records comes to posting position! Ask for KD505.



Convé-Filer*

... saves up to 30% on clerical cost for users of large, active card records... any one of 200,000 cards positioned electrically at the touch of a button. Ask for LBV160.



Roto-Kard*

...most advanced drum housing ... saves space, speeds reference ... up to 6,000 record cards in less than 3.6 sq. ft...electric or manual operation!
Ask for KD770.



Kard-Veyer*

...electrically powered ... 16,000 to 80,000 verticallyfiled cards (including punched cards) ... saves finding, posting, and filing time — and space! Ask for LBV706.

Films for Management ... THOMAS KENNY

Reviews of new films which move goods to market and people to action and how management uses them.

THE CONFERENCE METHOD AS A Selling Tool (32 minutes, color) was made by the Texas Company specifically for its 600 salesmen who hold sales meetings for gasoline dealers. While there have been other films devoted to the conference method (see DR&MI, September 1954, page 53), this is the first devoted solely to the conference as a selling tool.

The method was applied because Texaco found a reluctance among dealers to take heed of the sales messages dispensed at traditional sales meetings by company salesmen who, in many cases, had not experienced the problems of individual dealers. So, by the informal conference, the experiences of the group are pooled and the conclusions of the meeting are thoroughly acceptable to the dealers since they worked them out by themselves. The meetings are conducted by Texaco salesmen who are dressed

like the dealers (see photos).

Here are some of the things to be done in using the informal conference method as a sales tool:

1. Don't be afraid of asking very simple and elementary questions, for they bring out negative attitudes which may be hampering

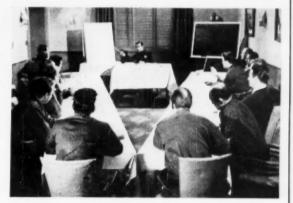
2. As the leader, you should refuse to answer questions even though the answers may be on the tip of your tongue. Instead, try to provoke the appropriate responses from the dealers at the conference.

3. Don't be afraid of time-con-

Helping dealers to train themselves



Don't preach to your dealers. Sales sermons don't hold their attention long and don't uncover their feelings.



Instead, set up informal panels to encourage group par-ticipation and to pool the experience of all dealers.

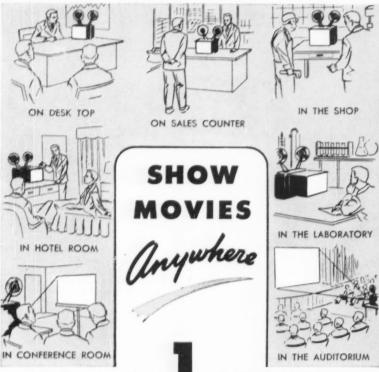


List on a blackboard all the important points agreed on. This saves backtracking, keeps the meeting on target.



Argumentative dealers need not slow down the meeting. Use them as a prod for positive reactions from others.

WAUKESHA **FOUNDRY** REDUCES INVOICE AND SHOP FORMS 70% WITH COLITHO OFFSET DUPLICATING PLATES The urgent problem of the Waukesha Foundry Company was to streamline its 17-part combination invoice and shop-copy forms. Aside from being obviously unwieldy, the old system absorbed countless manhours in typing and checking—and presented many chances for transcription errors. The invoice set was reduced to five parts. The necessary shop copy forms containing all the vital technical data for each job are reproduced from Colitho Direct Image Paper Plates. The total parts of the invoice set are reduced by more than two thirds, transcription errors are automatically eliminated and costly hours of retyping and checking time are saved. And the same Colitho Plate produces all shop-copies-uniform, original-looking copies-in perfect registration and in any amounts required. This case history demonstrates the economy and efficiency that countless businesses now enjoy through the use of Colitho Plates. We have a collection of these factual stories which you will find packed with valuable ideas. Just use the coupon and you if receive your copy of the Colitho Idea. File promptly.

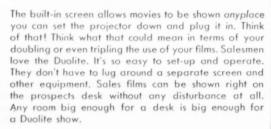


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With built-in screen

Yes, we mean anywhere . . . even in lighted rooms. With the Duolite you can show 16 mm movies in many places that were never before practical. The Duolite has a large built-in TV size screen that gives you beautiful picture reproduction without the fuss and bother of setting-up a screen or darkening the room. Yet, when you want to use a standard external screen, the same projector can be used. Just a flip of the lever and you're ready to go.



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Foreign Distr.: Westrex Corp. (formerly Western Electric Export) * 111 Eighth Ave., N.Y. 11, N.Y.

suming responses, for they may lead dealers to work out their sales problems as a group.

4. Sum up the points agreed upon from time to time so as to achieve complete agreement on sales goals and policies by the time the conference is over.

If you'd like to borrow a print of this informative film, write to Sales Promotion Dept., Texas Co., 205 East 42 St., New York 17, N. Y.

The Story of a Star (30 minutes, color) demonstrates another use of film by the Texas Company. Here, the complete story of oil from well to pump is told in a skilful public relations film. Camera crews travelled 16,000 miles throughout the United States to shoot the story of



how oil is found, produced, refined, transported, and marketed. You can borrow a print from Modern Talking Picture Service, 45 Rockefeller Plaza, New York 20, N.Y.

How to improve

SELF IMPROVEMENT MEANS GREATER SUCCESS (90 minutes, B&W) is a title with which few people can disagree. Neither will they find it easy to disagree with Dr. Norman Vincent Peale, a powerfully positive thinker, and one of the two stars of this inspirational film.

The other persuasive personality of the film is Millard Bennett, a leading authority on sales training, who relates many anecdotes from his wide experience.

However, audiences probably will disagree with the length of the film, which makes for just too much of a good thing at one sitting.

The film is aimed at all those, particularly in business, whose jobs lead them to deal primarily with people. It is really a re-enactment of the forum which Peale and Bennett have conducted for thousands of people seeking to improve themselves by improving their relations with others.

For further information, write to United World Films, Inc., 1445 Park Avenue, New York 29, N.Y.

Tour of the town

MEET THE NEW PITTSBURGH—WHERE EVERYTHING IS MOVING (10 minutes, B&W) should be an eye-opener for you if you haven't been to the steel center recently. Produced by radio station KDKA of Pittsburgh, this unpretentious little film provides a fast-paced tour of the city which has changed considerably in recent years. You can borrow a print free from KDKA, One Gateway Center, Pittsburgh 22, Pa.

Free catalog

The new edition of the General Motors motion picture catalog lists and shows scenes from 57 films. All of the films may be borrowed free and range from automobile engine operation to human relations in the plant. They vary in length from 9 to 55 minutes and many are in color. The films on driver education and safety should be of particular interest to plant managers. Available free from Public Relations, General Motors Corp., 1775 Broadway, New York 19, N.Y.

FREE FILM LISTS

We've revised and brought up to date our lists of 16 mm. motion pictures on management. Yours for the asking are lists on:

- Management methods
- Salesmanship
- Human relations
- Automation for plant and office
- Manufacturing methods
- Economics education
- Employee training and safety
- Work simplification and motion study

INCOME TAX

Continued from page 42

not wear out in a year or two are forced to overstate their incomes. The Revenue Act assumes that the dollar spent for machinery five, ten, fifteen, or twenty years ago is the same as the dollar to-day. The tax-payer knows this isn't so and that he must get two 1956 dollars out of his customer to pay for his 1940 dollar's worth of machinery.

The taxpayer is supposed to get his costs back before he calculates his taxable income. However, in figuring his taxable income he can take off only one 1956 dollar to make up for his 1940 dollar, so he is paying tax on more income than he is earning. The taxpayer is thus forced to pay tax on fictitious income.

6. Failure to recognize the disturbed conditions of world markets and permit taxpayers using the last-in, first-out inventory method to recalculate their taxes when low priced inventory, which was sold as



Maurice E. Peloubet was a member of the Special Committee of the American Institute of Accountants, appointed at the request of the Ways and Means Committee of the House of Representatives to testify on accounting principles for income tax purposes.

counting principles for income tax purposes. Recommendations of this committee were embodied in Secs. 452 and 462 of the Internal Revenue Code of 1954, but were later

Mr. Peloubet has been a consultant to the War Production Board, the Navy Department, a member of the Accounting Policy Committee of Fiscal Budget and Accounting Task Force of the Hoover Commission. He was also in charge of a special mission for the United States and British Combined Chiefs of Staff in Europe.

He is the author of Andri Working Papers

He is the author of Andit Working Papers and has been a contributor to the Journal of Accountancy, the bulletins of the National Association of Cost Accountants and other accounting and business publications.

A certified public accountant of New York, New Jersey, and Texas, he has served as president of both the New York State and New Jersey Societies of Certified Public Accountants. He has been a partner in the New York firm of Pogson, Peloubet and Company since 1921.

a result of conditions over which the taxpayer had no control, is replaced.

Under the last-in, first-out inventory method (LIFO), the taxpayer matches his current costs against his current sales. He leaves his inventory untouched unless he wants to reduce or liquidate it permanently. However, if he cannot buy to cover his sales because of conditions not

under his control, he must use his permanent inventory temporarily to fill his sales. In doing this, he makes what appears to be a large profit. But this is lost when he has to replace his inventory later when he can buy on the open market. He should not be taxed on this temporary profit he cannot keep and must reinvest.

7. Failure to provide self-employed business and professional men with the same chance to build up pension funds that corporations have.

Bills have been introduced in Congress to permit members of partnerships and individuals to participate in pension funds somewhat like the corporation funds. The Treasury has opposed them because of an anticipated loss of revenue.

These things should be changed and corrected without delay. But, as most of us know, congresses are like the mills of gods: they grind slowly. We may have to wait a few years for some of these reforms and many more years for others.

One objection brought forward by the Treasury Department when asked to give advice on laws meant to get rid of abuses or inequities is "This will cost us money. It will reduce revenue."

There is no excuse or reason for this attitude. If present rates, applied fairly and equitably, produce insufficient revenue, the remedy is to increase rates, not to perpetuate inequalities and injustices. Good administration and a fair distribution of the tax burden is the legitimate concern of the Treasury. How much revenue is raised is a budgetary problem and the business of the Congressional committees and the Bureau of the Budget.

A persistent failure or refusal on the part of the Internal Revenue Service and the Treasury to recognize this separation of powers and responsibilities is the reason, in the long run, for a great deal of bad administration and improper enforcement of tax laws.

Frequent examples of usurpation of Congressional authority may be found in the working of various relief provisions. Instead of believing that Congress really intended relief provisions to relieve, the Internal Revenue Service has generally tried to limit and weaken them



the office cheerleader?

Modern communication is a *science*, not an exercise in lung power.

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Typical cabinet housing controls for a Stromberg-Carlson system. Handsome, easy and quick to assemble, entirely flexible to meet your specific needs.

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I'm interested in finding out about a modern intercommunication system. Please send your representative to make a free survey of my place without obligation on my part.

Company	
Address	

Person to see

"Do you mean to tell me -?" the President began ...



The President takes a second look

"As I see it, then—" the President began ticking points off on his fingers "—the customer's credit rating is in a low bracket. Under the terms of our policy with American Credit Insurance, this gives us a relatively low coverage. This, in turn, doesn't warrant our shipping the order. Is that right?"

"That's right, sir," The Credit Manager replied, with assurance. "You see, in the policy, a schedule of ratings and coverages is established. A certain rating—a certain coverage. It's automatic."

"Then why," the Sales Manager demanded almost truculently, "do we have credit insurance at all?"

"Accounts Receivable," said the Treasurer, "represent our second largest asset. We want to protect it. Credit Insurance keeps our loss ratio low."

"That's true, sir," the Credit Manager put in. "We have decreased our loss ratio these last few years through our coverage by American Credit Insurance. And up till now—'he couldn't suppress a note of bitterness as he glanced at the Sales Manager "—we have been able to increase sales in areas we couldn't have touched before."

"Yeah," the Sales Manager said, "but what it comes down to is that we lose the order. I say we ought to take a chance!"

"It's not a chance. It's a gamble," said

"That settles it." The President put a real note of regret in his voice as he finished: "Since we can't take the chance, we'll have to lose the order."

"It's almost time for the Board Meeting. We'd better go," the President said ten minutes later. "Most of the office door as he and the Treasurer filed out. "What do you think of those two?" he asked as they walked down the corridor.

The Treasurer smiled his neat little smile. "A good Sales Manager's got to be willing to gamble. A good Credit Manager's got to be willing not to. It takes courage for both."

He pushed open the Board Room door, then both men turned as rapid footsteps echoed in the quiet corridor. "I'm glad I caught you," said the Credit Manager, speaking to the President. "I'd like to ask you to reconsider the decision on that account."

"Do you mean to tell me—?" the President began, but the younger man went right on, while others in the Board Room turned to watch the tableau at the door.

watch the tableau at the door.

"I decided to take a second look at our policy. Then I called our American Credit Insurance agent and confirmed it. The account can be covered for more under our policy. All we do is obtain an endorsement, approving the account by name. After they investigate it, of course. All I need now—" the Credit Manager paused for breath "—is approval to pass the credit when the endorsement is obtained!"

"You - decided - to - take - a - second—" the President spaced out his words, then suddenly chuckled. "Well, I guess I can take a second look too! You've got the approval!"

Obtaining greater coverage on a low-rated account is one example of the flexibility of American Credit Insurance. Among the 12 major benefits of Credit Insurance, many more are sure to accrue to your advantage. For your copy of a free booklet, "A Preface to Profits," write American Credit Insurance, Dept. 50, First National Bank Building, Baltimore 2, Maryland.

American Credit Indemnity

COMPANY OF NEW YORK

as much as possible. Obvious technical inadvertencies have been seized on to deny relief, and benefits have been pared and chiseled to the limit.

Most of these difficulties arise from the desire to bring in some tax receipts at any cost. Many officials of the Internal Revenue Service seem to feel that all relief provisions are bad, and have the conscientious, if mistaken, conviction that the function of the Service is to correct the mistakes of the budgetary authorities simply by collecting as much in taxes as possible.

Another cause of doubt and dismay to taxpayers is the inordinate length of time required to prepare regulations under the 1954 Revenue Act. It is past the middle of 1956 and taxpayers have no idea where they stand on some of the most important provisions of the 1954 Act. Some regulations have been in the works since before the passage of the 1954 Act. In some cases it has taken literally years to decide, not on a ruling or a regulation, but on whether a given situation should be covered by a ruling or by a regulation.

With all of this difficulty, indeci-

sion, and delay it remains true that, with few exceptions, the officials and employees of the Treasury and the Internal Revenue Service are honorable, well-intentioned people capable, under proper conditions, of performing their duties effectively. If this were not so, the collection machinery would have broken down long ago.

No Simple Laws

We cannot have simple laws imposing high rates which are at the same time fair and just. To be fair in the multitude of special situations we must have a law as complicated as the situations.

We cannot have immediate and impartial answers to tax questions. We must give the Internal Revenue Service some time to answer us. But the time should be weeks or months, not years and decades. We can also have consistency and the assurance that a decision, once given, will stand for all similar situations.

We can have a proper respect for the courts and Congress shown by the Treasury Department and the Internal Revenue Service. The Serv-



and

ice must occasionally go to the courts to clarify a doubtful point in the statute and can take an appeal if it disagrees with a decision of a lower court. However, there are too many sound court decisions which are either circumvented by the Service or not concurred in. Efforts should be made to reduce both the volume of litigation and the number of decisions which are disregarded by the Commissioner.

Should Stick to Duties

Everyone admires the Internal Revenue Service when it does its job. That is to collect the revenue according to the plain meaning of the law, hunt down the cheat and the defaulter, and help the honest taxpayer to pay an honest tax. But the Internal Revenue Service should not go beyond that and try to tell the taxpayer that its employees know more about his business than he does, try to collect more tax than the Congress intended, or, through a doubtful technicality, cut off relief that Congress intended.

There have been many improvements in the administration of the tax laws in the last few years. The taxpayer, on the whole, is treated better. The agents are more severe on the defaulter and are trying to be fair to the honest taxpayer.

Some good tax legislation has been passed and some that was bad repealed. It is quite possible that what we might call the piecemeal method of improvement has done as well as could be expected.

However, the basic difficulties remain. The attitudes are the same. The deep-seated causes of delay, indecision, inequity and unnecessary complication have not been touched. What is needed is a genuinely new look, a thorough-going survey and examination by a capable and unprejudiced group of administrators, business men, attorneys, and accountants. Such a group would have no responsibility for the present unwieldy machinery and would not hesitate to do away with time-honored rules and precedents if necessary. They would have no purpose or desire except to devise a fair and workable tax structure and a tax collecting agency that would operate quickly and with confidence in its own judgment.



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... from the air

Always on the lookout for new and improved prospecting methods, International Nickel is bringing more precision, more speed, more range, more depth to its continuing search for new Nickel ores.

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to development of an ore body. In between come time-consuming ground studies, detailed mapping, expensive diamond drilling. Then the slow, laborious sinking of an exploratory shaft for further probing of the ore body.

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opment work; and, then, by following this through with truly advanced mining and processing methods, International Nickel has been able to boost output to today's record levels, yet increase proved ore reserves.

Inco's full-color sound film-"Mining for Nickel"-shows modern exploration methods. Prints are loaned to technical societies, universities, industry. Write The International Nickel Company, Inc., Dept. 136e, New York 5, N. Y. ©1936, T.I.N. Co., Inc.



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INDUSTRIAL BESTSELLERS: 38 MILLION LITTLE BOOKS

It's the message, not the match, that has built the matchbooks' big role in employee communications.

HE PIONEER who first called a covered pad of paper matches a match book hung a better name on it than he knew.

To-day, especially among the approximately 38 million match books that business and industry distribute to employees, there may be three or four elements in the printed message they convey. There are pictures, slogans, advertisements, verse, and stories—on front and back covers, inside, or even on the matches themselves.

What could once be described as the world's smallest billboard (see example at top of page) to-day more nearly resembles a volume in some-body's Little Giant Library. The function of lighting up a smoke has been reduced to a gimmick to get the customer to read the message.

In a survey five years ago, the Match Industry Information Bureau found nearly 500 companies that used match books as a means of communication with employees and their families. This year it estimates about 1,000 companies do so.

About 80 per cent of the messages, on some 30 million books each year, bear on plant safety, and each message is presumed to make 20 "impressions." The Bureau thinks this is a safe bet, because it once hired a little man to go around and pick up discarded match books. In the 9,000 he picked up, which originally contained 180,000 matches, he found only eleven unused.

Match books are also used for recruitment every-employee-get-an-employee campaigns, or general solicitation through wide distribution. Some books promote waste-reduction or qualitycontrol campaigns; appreciation of company benefit plans is stimulated by others; some are used as miniature checklists; still others punch across main themes in public or community relations programs.

When New York newspapers were featuring articles on smoke control, Consolidated Edison Company told its employees on match book covers—so they could tell friends, neighbors, and public—"Smoke Control record since 1937—\$16 million spent—\$4 million work under way!"

The story was also told at meetings, in employee publications, on bulletin boards. "We found," said Ray Martin, director of advertis-

ing, "that to people who don't remember what a speaker tells them, or devote little time to memorizing what they read, the facts come through solidly by the time they have been seen 20 times in the course of lighting 20 matches."

Consolidated Edison got the idea for reaching employees scattered in 65 installations via book matches from a headquarters secretary. Matches are distributed at cigarette counters in company buildings and are so popular some employees buy them by the box. Messages are changed monthly.

Chesapeake & Potomac Telephone Company uses match books to remind employees to recruit their friends for jobs in the Virginia utility.

The George D. Roper Company, Rockford, Ill., builds interest in its employees' credit union by talking up the organization on match book covers, and the Knoxville Utilities Board has got the story of its employee benefits to workers' homes by putting the information in a "pie chart" on a match book cover.

Hartford (Conn.) Electric Light Company

gives safety matches with congratulatory messages to work crews with month-long accident-free records. When the Navy's Bayonne, N. J., Supply Depot went 100 days without an accident, 4,000 match books with safety messages were distributed—some, bearing the Base Commander's signature, won prizes.

National Lead Company's Titanium Division, Colorado Fuel & Iron Corporation, and Carrier Corporation, Syracuse, have also used contests to spur attention to book-match safety slogans. Cigarettes, movie tickets, merchandise are the usual prizes. Winners are those who can find the right "hidden letters" under match splints.

Methods of distribution vary widely. Here are some: at gate at quitting time, mailed to homes, in one small town delivered to homes, in plant vending machines, at company cafeterias, through supervisors and foremen, in local bars and restaurants, through truck drivers to reach field personnel, at social and union meetings.

It's getting so a fellow can't have a peaceful smoke any more, without being indoctrinated.



Humor, a cover picture . . .



Short, short story inside . . .



A house-ad on back page . . .

Add a sports page and you have a magazine

Triple-threat matchbooks (above) of The Nestlé Co., Fulton, N.Y., wastes no space, plugging a company product as well as putting across two safety messages in picture and "story." Westover Air Force Base has another kind of feature—preflight checklists for airplane crews on the back cover and for pilots inside, safety message on front cover.



... and a new concept in motor ventilation proved its worth



Among the several operating exhibits in the Howell Motormobile, one that seems to interest visitors most is the measurement of temperatures inside motors as they operate under varying loads. Engineers, presidents, production men and purchasing executives, all dial the temperatures, feel the relative coolness of the outside frames, and then see for themselves the ingenious design for heat-source ventilation that makes Howell Series 100 motors run so cool. While they're studying the built-in air passages of Howell's new stator, it's not difficult to recognize how efficient heat dissipation assures longer motor life and better protection against overheating.

In the course of visits to many manufacturing plants during the past year, the Howell Motormobile proved a number of things. One is that executives and operating personnel value on-the-spot, in-action ideas about electric motors and how they are constructed. Another is, despite the common assumption that all motors have similar operating characteristics, these men are quick to recognize real superiority.

In case you are not one of the estimated 10,000 people who will visit the Howell Motormobile in '56, may we suggest that you get the Howell story by other means. Howell makes motors of virtually every industrial type, from fractional to 300 horsepower. Write Howell Electric Motors Company, Howell, Michigan. We'll see that you get attention and information promptly.

HOWELL motors

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Executive BOOKSHELF

GROVER AMEN

Attacking the giants

GIANT CORPORATIONS: CHALLENGE TO FREEDOM by T. K. Quinn. Exposition Press, Inc., 386 Fourth Avenue, New York 16, N. Y., 198 pages, \$3.50.

This is a documented, if somewhat impassioned, criticism of the present state of American "free enterprise."

The author argues emphatically that it is not free, having come under the control of "giant corporations whose decisions have economic and political consequences which sometimes exceed the authority of the government itself."

"One-tenth of 1 per cent of all corporations," writes Mr. Quinn, "owned 52 per cent of all corporate assets and earned 50 per cent of total income as early as 1940." He argues that actual free enterprise and competition in our economy are becoming only propaganda terms used by giant corporations to rationalize their own monopolies.

Individual ownership, smaller and more numerous independent units, Mr. Quinn believes, are the conditions precedent to a true free enterprise system.

"As the merger movement proceeds, and the giants become bigger," he argues, "they assume political as well as economic roles. We are gradually being led by default into a new kind of American feudalism . . ." The threat of "monopoly capitalism" he sees as greater than that of big government control.

This leads Mr. Quinn to a position where he must concede, though insisting he is not a socialist, "that socialism is the only escape, if we are to avoid fascism." He suggests such government controls on big corporations as higher graduated federal taxes, government assistance to smaller business, and abolition of holding companies.

Whatever objections may be raised his conclusions and proposed cures, Mr. Quinn has written a re-

freshing and challenging attack on the giants of industry.

Prudence and progress

CAN PROSPERITY BE SUSTAINED? by Neil H. Jacoby. Henry Holt and Company, Inc., 383 Madison Avenue, New York, N. Y., 152 pages, \$3.

Dr. Jacoby is more optimistic than Mr. Quinn about the future of our economy and feels that decentralization of large industries is a negative rather than a positive approach.

"Government," he says, "can destroy far more monopoly by policies which speed up technological progress and economic expansion than it can by actions to break up firms or rearrange trade relationships among businesses."

He terms the issue of "laissezfaire" vs. "interventionism" essentially a false one. "We have learned from experience," he writes, "that our goal of high employment and production, without inflation, and in a free economy, can not be attained under either approach. Laissez-faire can bring about intolerable depression or inflation. Interventionism will in the end dampen progress and destroy freedom."

Dr. Jacoby feels that the Government should play a role in the economy—but a highly flexible one—strong when private industry is expanding and vice versa. He proposes such concrete measures as cutting of private income tax rates when business slackens and adjustment of government borrowing to the amount of capital available to private business. He also recommends strong cuts in the present corporation profit taxes in the interests of allowing smaller companies to expand.

Through a balanced government policy that does not encroach on but supports high business incentives, Dr. Jacoby feels that the answer to his title will be a positive

Cases, methods, communications

OPERATIONS RESEARCH FOR MAN-AGEMENT, Volume II, edited by Joseph F. McCloskey and John M. Coppinger. John Hopkins Press, Homewood, Baltimore 18, Md., 563 pages, \$8.

This collection of articles represents a formidable achievement in concretely showing operations research at work. Thirteen case histories cover in detail the application of operations research to such problems as the revision of New York's subway fare structure or road safety and traffic research in Great Britain.

Nine articles are devoted to a study of operations research methods and five to information handling in organized groups.

Though most of its material is highly technical, as far as the general reader is concerned, this volume should have a place on the reference shelf of every company utilizing or studying operations research.

Ahead on the highways

FREEDOM OF THE AMERICAN ROAD published by the Ford Motor Company, 3000 Schaefer Road, Dearborn, Mich.

This is one of the most comprehensive books ever compiled for the general reader on highway construction, traffic control, and safe driving. Published in magazine form, it contains over 40 articles which combine information and readability to a remarkable degree.



Illustrations, many of them in color, are as numerous as they are excellent. Another remarkable feature of the publication is that individual copies are free. Bulk orders may be obtained from the Ford Motor Company at \$1 a copy.

More reviews on page 82

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On the job

WORKER SATISFACTION AND DEVEL-OPMENT by A. Zalezmk, Harvard Business School, Soldiers Field, Boston 63, Mass., 148 pages, \$2.

This paper-bound volume; subtitled "A Case Study of Work and Social Behavior in a Factory Group," explores the life on the job of fourteen men in a small machine shop.

One value of the book lies in the fact that the material was not gathered to support any preconceived hypothesis. In fact, a very small part of the book is devoted to generalization.

The author believes that management must (1) create job conditions where workers may find satisfaction as a social unit and (2) provide creative challenge so that such groups will not become "frozen" by routine.

His suggestions for achieving these aims are not novel. What is most valuable in the book is not his proposals but the actual recording and interpretation of the minor drama of men on their jobs. Their habits and social patterns may suggest to management and supervisors many concrete approaches to employee relations problems. The author has succeeded in finding meaning in everyday conversations and activities which would ordinarily be overlooked.

A dubious friend

AUTOMATION, FRIEND OR FOE? by R. H. MacMillan, Cambridge University Press, American Branch, 32 East 57th Street, New York 22, N.Y., 100 pages, \$1.95.

In 1680 a Frenchman named Denis Papin placed a heavy weight on the lid of a pan. The device was termed "a new digester or engine for softening bones" which could "extract nourishing juices from bones which would otherwise have been abandoned as but poor prey by ye hungry dogs."

From this date Mr. MacMillan traces the gradual development of automatic control to its present point of becoming a "second industrial revolution."

This is not a book for the top executive who is attempting to battle the practical problems of introducing large scale automation to the plant or office. It is written more for the general reader or business man wanting an entertaining and over-all view of automation, its history, nature, and applicability.

Among the social and functional problems automation poses, the author discusses expense and obsolescence, inflexibility of function, and displacement of labor. He comes to the conclusion that automation is a needed friend.

Growth and production

RESOURCE AND OUTPUT TRENDS IN THE UNITED STATES SINCE 1870 by Moses Abramovitz. National Bureau of Economic Research, 23 pages, paper, 50 cents.

Though net national product per capita has approximately quadrupled in the last 80 years, and population tripled, Dr. Abramovitz finds that the rate of growth has been very uneven. This has made it hard to confirm significant trends in growth rates of total output and of output per head.

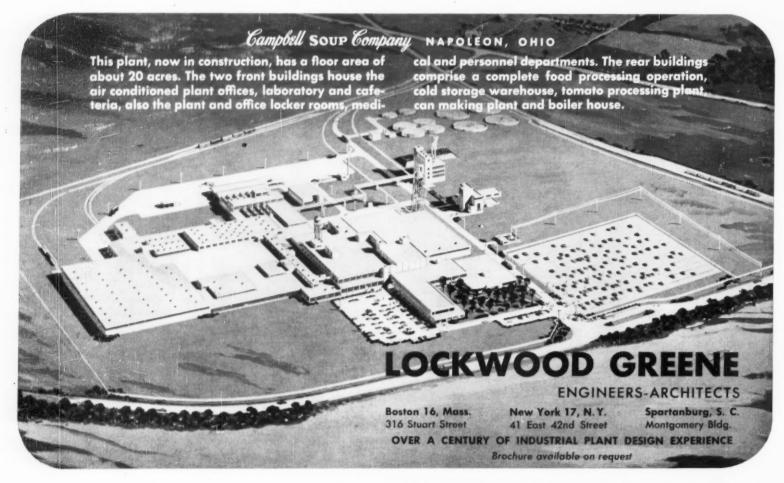
Is the general growth rate slowing up? The author maintains that available data prohibits a decisive answer. His book is most valuable, not in providing easy answers, but in discerning weak spots in present data and in suggesting ways by which our methods of interpretation can be improved.



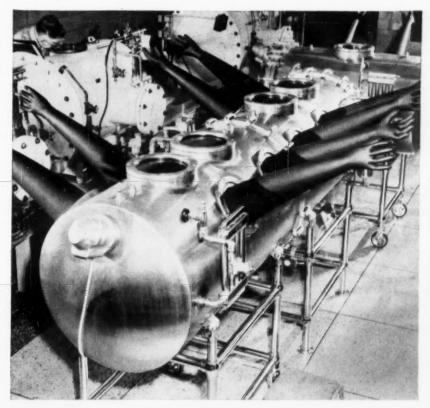
A business history

DESIGNED FOR DIGGING by Harold P. Williamson and Kenneth H. Myers, II., Northwestern University Press, Evanston, Ill., 384 pages, \$7.50, Illus.

Business histories are becoming increasingly popular as a means of promoting company public relations and prestige. This illustrated history of the Bucyrus-Erie Company, manufacturers of power excavators, is an example of the best in its field. Material is related to every phase of the industrial and economic development of the United States since 1880. To a company president planning promotion through a business history, this book should serve as a good guide.



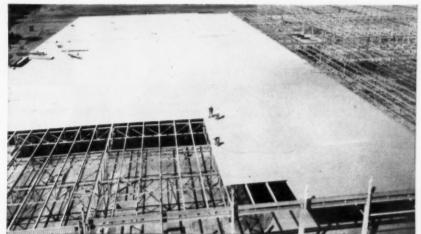
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Germ-free Animals. At the Lobund Institute of the University of Notre Dame, these Stainless Steel germ-free units hold animals that lead a germ-free life. The animals are handled with the large gloves shown, and valuable experiments can be run on creatures who eat only sterilized food, and breathe sterile air. The Stainless Steel tanks are smooth and easy to clean, and they will not corrode.



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UNITED STATES STEEL HOMES, INC. - UNION SUPPLY COMPANY - UNITED STATES STEEL EXPORT COMPANY - UNIVERSAL ATLAS CEMENT COMPANY

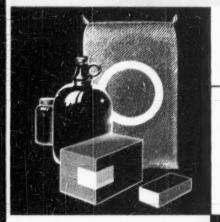
6-1928

SEE The United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

OPPORTUNITIES FOR DEVELOPMENT

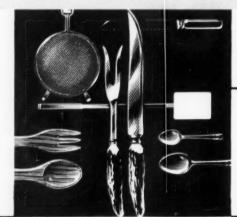
in Manitoba, Canada...

Factual and very complete reports recently made by an internationally known industrial research firm indicate the following diversified businesses and industries can profitably establish in Manitoba. In many instances, local capital is available to assist in getting new plants established. In some cases, capable personnel are available to assist in the management of such plants.



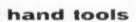
agricultural chemicals

Manitoba is well located in regard to the agricultural pesticide market in Western Canada. There is room for additional formulating capacity in the province. Investment involved is relatively small.

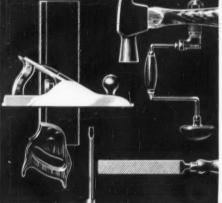


cutlery

Excellent opportunity for mediumsized plant to assemble and manufacture consumer knives and kitchen tools. By importing steel blanks, a basic knife plant could be established in Manitoba with about \$30,000 capital.

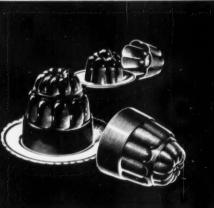


Very attractive proposition in Manitoba's expanding metalworking economy. The establishment of a hand tool plant in Manitoba would fulfill a regional need. Proposed plant is based on yearly sales of \$250,000. Capital requirements, excluding costs, would total about \$115,000.



gelatin

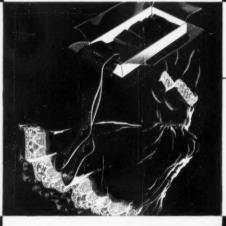
An unusual opportunity for the manufacture of gelatin based on the important Western Canadian packing industry. Proposed plant would produce 750,000 pounds of finished products annually. Capital investment is estimated at \$875,000.





plastics

A number of attractive opportunities for medium-sized operations in both molded and extruded plastics are available for development in Manitoba to serve a fast-growing regional market.



hosiery and lingerie

Apparel manufacturing is one of Manitoba's leading industries. It occupies a leading position in Canada in the production of many lines of clothing. There are many products which provide opportunities for development. Among these are plants for the manufacturing of hosiery and lingerie.

other opportunities

There are many other positive manufacturing opportunities in Manitoba.

These opportunities, existing in a period of history that offers unequalled promise for business and industrial ventures in this province, are worthy of investigation. Pipe and Sheets
Fresh Frozen
Foods
Canned
Vegetables
Metal Containers
Glass Products
Hardware
Electrical
Equipment
Copper and Brass
Products
Paint

Electronic
Instruments and
Equipment
Household Goods
and Appliances
Cotton Textiles
Neckwear
Women's Dresses
Knitted Goods
Rainwear
/Pulp and Paper
Alluminum
Extrusions
Fertilizers

Copies of any of the reports mentioned above which give details on markets, distribution, production, practices, capital

requirements, return of investment and a review of other locational factors, may be obtained by writing to: IN CANADA
 Department of Industry & Commerce 252 Legislative Building Winnipeg 1, Manitoba

IN THE UNITED STATES
 Canadian and General
 Development Corporation

IN THE UNITED KINGDOM AND EUROPE

Office of the Agent General, Manitoba Department of Industry & Commerce 3 Spring Gardens Ondon S.W. 1, England

ABSENTEEISM: HABIT OR REACTION?

New evidence from factory study finds that casual absentee, not chronic offender, is big management problem

THERE is no such thing as accident-proneness, according to some safety men. Others are agnostics, Still others, of course, believe that individual psychology is the key to almost all accidents.

The situation is similar in regard to absenteeism. Doctors at the New York Telephone Company, for example, have found that, over the years, a small percentage of employees is responsible for a large percentage of absences and time lost (see "Curing the Absence Habit," DR&MI, April 1956).

One-third of the company's employees account for three-quarters of its absences, the telephone company doctors report—supporting the thesis that there are "absence-prone" people. On the other hand, the Survey Research Center of the University of Michigan has come up with evidence that relations between employees and their supervisors are a vital, if not the vital, factor in absentecism.

Now the staff of a plant of an electrical appliance company has produced figures from a study that appear to run counter to those of the New York Telephone Company, and tend to lend strong support to what the university researchers found out in their survey at the Detroit Edison Company.

The findings, taken from elaborate statistical charts, may be summarized in this way:

1. Over a period of a year, the majority of the absenteeism is caused by a large number of people missing relatively few days (each).

Almost everyone in the plant misses at least one day a year, with the majority missing about eight days a year.

3. The cases of flagrant ab-

senteeism are few, even on a yearly basis.

The study, conducted by three members of the training staff of the appliance-manufacturing concern, and cross-checked against efficiency ratings and a number of other relevant factors, turned up some other facts of interest to companies concerned about absences and lateness of their employees. For example, consider these eleven items:

 Absenteeism was lowest in one department of three, which supervision had thought suffered most in loss of efficiency from lateness and absences.

2. The same department also had the lowest rate of lateness.

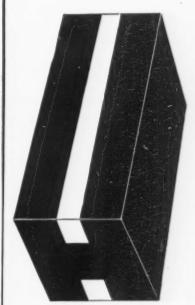
3. Although supervisors thought lateness and absences were more frequent in May and June than in



Don't want to write suggestion? Talk it!

Some people freeze up when they are asked to put pencil to paper, but General Electric's Medium Induction Motor Dept. in Schenectady, N.Y., wants their ideas for its suggestion system, anyway. So, it has installed this "golden ear" near a suggestion box. Actually made of papier mache, it con-

ceals a microphone attached to a tape recorder. Peggy McQueen, playing the shy suggestioneer, whispers an idea into it here. Employees who don't like talking into out-size ears may still write their suggestions on cards and put them in the drab, old-fashioned suggestion box as before.



ONLY TWO STRIPS REQUIRED

Because of its unusual strength, only two strips of TROJAN Cord Tape are required to seal many boxes. This saves time, material and labor in making the closure.

Let us send you full information about TROJAN Cord Tape, the official railroad, truck, express and parcel post box sealing requirements, and the name of a local paper merchant who can supply you with TROJAN Cord Tape. TROJAN Cord Tape may be applied with automatic sealing machinery...approved under Rule 41 Uniform and Con-

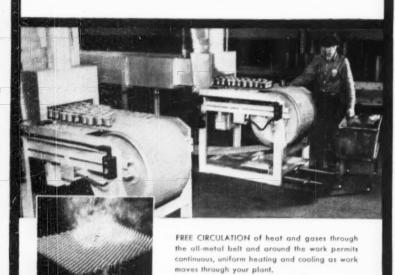
Rule 41 Uniform and Consolidated Freight Classification. Write today.

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The GUMMED PRODUCTS COMPANY

Cambridge

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By combining controlled movement with free circulation of process atmospheres, Cambridge Woven Wire Conveyor Belts eliminate batch annealing and brazing. There is no formation of "hot spots" which produce local stresses. Continuous, belt-to-belt flow through subsequent quenching and washing operations as well as heating, cuts costs and provides fast, uniform production.

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. . . metal parts, food products, chemicals, plastics, ceramics, glass . . . or whether your process is wet or dry, at sub-zero temperatures or $2100\,^{\circ}\mathrm{F}$. . . you can increase production and cut operating expenses all along the line by combining movement with processing on Cambridge Woven Wire Conveyor Belts.

Cambridge Belts are individually designed for your installation from a wide variety of specifications. The metal or alloy from which they are woven is specially determined after investigating the resistance to heat or corrosion required by your operating

Ask your Engineering Department to call in your Cambridge FIELD ENGINEER and discuss how you can eliminate batch handling from your processing. The Cambridge man nearest you is listed under "BELTING, MECHANICAL" in your classified phone book. WRITE for your PERSONAL COPY of 130-PAGE REFERENCE MANUAL illustrating ways in which other manufacturers have employed Cambridge belts, and including design information.



The Cambridge Wire Cloth Co.

METAL SPECIAL CONVEYOR METAL BELTS FABRICATION

Department Y, Cambridge 8, Maryland



FFICES IN PRINCIPAL INDUSTRIAL CITIES

January and February, the situation was actually the opposite.

4. Records for three departments most intensively studied show that approximately one-third of the hourly-paid workforce will miss at least one day a month.

5. The tendency to be absent decreases the more a person is absent.

6. Variations were very wide, however, in the records of groups headed by different foremen. Of foremen whose groups' records were studied for sixteen weeks, the one with the best record had an absence rate of only 2.2 per cent; the one with the poorest record, 5.2 per cent. A foreman whose group's records were covered for only seven weeks had a high rate of 7.7 per cent.

7. As in most such studies, it was found that departments where women employees predominate had higher absence rates. So, also, did departments doing less skilled work, as compared with those doing more highly skilled jobs.

8. Lateness varies much less from department to department, but *does* vary from foreman to foreman.

9. Very few people are absent more than once a month, or even more than once in three months. There is nothing "epidemic" about lateness, apparently.

10. There appears to be no significant correlation between departmental efficiency and absenteeism. One curious finding, worth further study, was that, in the cases where there was a high correlation between efficiency and absenteeism,

the efficiency was high where absenteeism is high. Although the study group did not mention it, this might indicate that a factor was at work like that in the famous Hawthorne studies—esprit de corps making up for disadvantageous situations.

11. Efficiency was lower in departments with high turnover rates.

The training group which conducted the study ventured to make some recommendations, which might well be adopted by others:

1. Maintain better records on absenteeism and lateness. Have time-keeper classification of employee, foreman's code or name, clear-cut reason for absence or lateness, in addition to data already kept.

2. Management reach definite agreement on what constitutes excusable absence or tardiness; different standards prevail in different departments.

3. Make foremen more aware of high cost of turnover and institute program to avoid terminating employee without first seeing if termination cannot be avoided.

4. Make absenteeism and turnover rate a part of each foreman's record, to help management evaluate his effectiveness.

Outsiders may also conjecture on the value of union contract clauses that are designed mainly to discipline the flagrant absentee, if the occasional absentee is the real management problem. The standard clause, bearing down only on the bad offender, has no application to the casual or random absentee.

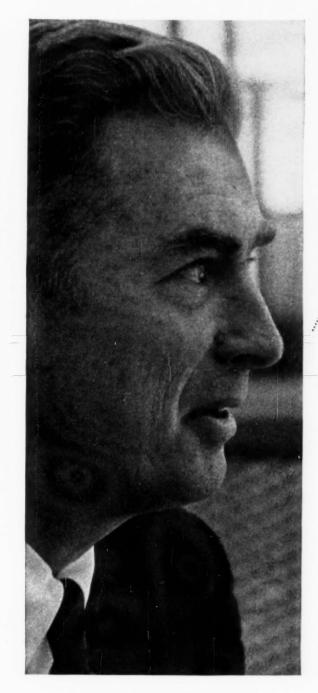
There's more than one way to tackle a gasoline fire

Dry chemical (right), portable carbon dioxide extinguisher (below), foam (lower right)—all will make short work of a gas fire if properly used, fire fighters were shown at First Annual Southwestern Fire and Safety Clinic in Tulsa recently by James Nichols of Walter Kidde & Co.











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And what a price!
The new Micro-Twin
recorder-reader costs less
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pay for a recorder alone!

Now you, too, can give the old heave-ho to overflowing filing cabinets and ceiling-high stacks of yellowing records. For Burroughs has come up with microfilming equipment you can afford!

Fact is, this new Micro-Twin costs substantially less than any other up-to-date microfilming system ... yet offers all the protection and speed features you need.

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Yes, mister, plain and simple here's microfilming you can afford! Of course, your set-up may require units in various departments or branches. In which case, you might find the low-cost Model 205 Recorder and separate Model 206 Portable Reader the economical answer to your microfilming needs.

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WORKER PRODUCTIVITY

Continued from page 47



Statement of Condition June 30, 1956

Resources

\$ 280,014,313.24 Cash on Hand and in Banks 354,059,126.86 U. S. Government Obligations State, County, and Municipal Bonds 65,955,777.22 Other Bonds and Securitie 24.409.447.36 2,400,000.00 Stock in Federal Reserve Bank Loans and Discounts 805.309.549.40 13,534,208.74 Bank Premises and Equipment Other Real Estate 1.00 Customers' Liability under Acceptances 2,790,464.55 Accrued Interest Receivable and 11,111,978.05 Total Resources \$1,559,584,866.42

Liabilities

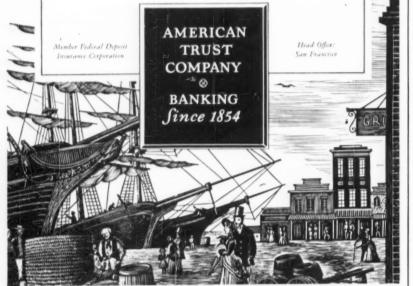
Undivided Profits 22,698,429.47 102,698,429.47 Total Liabilities \$1,559,584,866.42

United States Government and other scenitive carried at \$172,231,443.86 are pledged to seeme U. S. Government Deposits, other public finals, texts deposits, and per other purposes as required or premitted by law.

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BANKING OFFICES THROUGHOUT NORTHERN CALIFORNIA

a primary means of personal advancement for wage earners' families, have been extended to all groups in the population. In 1910, only 15 per cent of all youths of high school age were enrolled in high school and only 9 per cent graduated. Today about 75 per cent are enrolled and more than 90 per cent of them complete high school.

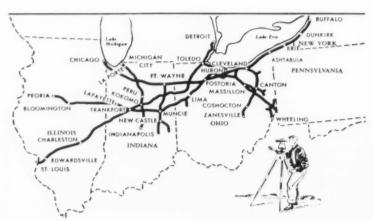
A less obvious, but nevertheless important, component of our higher level of living is the many government activities representing the resolve of all groups to protect workers from the hardship of change itself. Unemployment insurance, placement services of employment offices, vocational guidance, and social security plans contribute to the prevention of human misery and wasted manpower.

A remarkable feature of America's economic progress is the increase in the average worker's leisure time that has accompanied the increase in material comforts and amenities. American workers have received their share of industry's rising productivity partly in the

form of a shorter workday and workweek and longer vacations instead of more goods and services.

The eight-hour day, the goal of labor organizations in their beginning, has long since been attained. The standard workweek in 1956 is 40 hours, even shorter in some industries. The two-day weekend is typical. This means the average worker has fifteen to twenty hours more free time each week than the worker at the beginning of the twentieth century. "After work" is now not merely a period of physical recuperation, but an opportunity for family enjoyment and self-development.

Of course, we must not overlook the "positive feedback," to use 1956 terminology, of shorter hours of workers on the growth of productivity itself. Less fatigue, better health and education, as well as the general rise in the level of wages are not only the results of higher productivity but also factors contributing to its rapid growth. Without greater leisure it is conceivable that the nation's product would not



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have increased to such an extent.

While the benefits of productivity growth are well understood, we must also be aware of the high costs progress sometimes imposes on certain individual workers and communities. Faster tools and methods of production mean new opportunities for many workers, but loss of jobs and obsolescence of skills for others. Behind the fears that the word "automation" arouses today is often a concern with the real problems of worker welfare it may create.

Displacement Problems

In our free economy, some displacement of workers as a result of increased productivity and consequent shifting of resources may be unavoidable. Actually, job dislocations may occur to a greater extent in concerns that do not improve their productivity and are at a competitive disadvantage with more advanced plants. Displacement creates particularly serious problems of worker relocation where an entire plant, the mainstay of a community's economy, is forced to close.

In the past, the individual worker had little protection against the

hazards and hardships of industrial change. Unemployed cigar makers, glass blowers, and others often failed to share in the general progress of the economy.

To-day we are constantly seeking to improve our system of unemployment insurance and public employment offices, to make the transition from one job to another faster and easier. Perhaps equally significant are the spread of collective bargaining and the application of industrial relation practises in which the adverse effects of change on people are anticipated and orderly adjustments at the plant are planned in advance.

The fate of people caught in present pockets of unemployment constitutes a continuing problem to which we must direct our most thoughtful efforts. Current technological change, of course, is only one of many factors involved. Management, labor, government, and, perhaps most important, each individual community must work together on this complex matter so that every worker shares in the nation's growing abundance.

The employment problems of older workers in an age of changing technology also deserve special at-

DESIGNS FOR PROFIT... BY KULJIAN



POWER. Ford's Rouge Plant gets another boost in steam generation. The new units, each capable of producing 600,000 lbs. per hr., make highly efficient use of biast furnace gas as well as other fuels. Modernization of the world-famous industrial power plant, including boiler replacement, was accomplished without disruption of service.

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REFINERIES. Sun Oil Company's \$15,000,000 petrochemical plant at Marcus Hook, Pa., covers 20 acres. Designed capacity in excess of 50,000,000 gallons of petrochemicals annually. Kuljian cooperated with Sun Oil engineers to design the prefractionation and catalytic reforming sections.

INDUSTRY. New G. E. Apparatus Service Shop and Warehouse in Philadelphia is a striking example of a building properly designed to permitflexibility of operation and future growth. Complete facilities for the repair of industrial, transportation and central station apparatus are maintained here to service the needs of Delaware Valley.

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And, with the True Temper shaft you are assured of the finest nickelchrome finish developed. This beautiful lustrous finish is produced with a Udylite Full Automatic Electroplating Machine.

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World's Largest Plating Supplier tention. Once displaced, such workers only too often find it difficult to find new jobs. The Department of Labor is seeking to promote a better understanding of the valuable work qualities of our mature workers, who are an increasingly important part of the labor force.

While we do not wish to minimize the hardships, whether temporary or more enduring, that displaced workers suffered, it is noteworthy that productivity growth in the past was accompanied by a shifting of jobs rather than a net longrun displacement of labor. The story of industrial America records the opening up of new occupations and industries by science and invention as opportunities declined elsewhere.

Goods vs. Services

Productivity gains in the goodsproducing industries—agriculture, mining, manufacturing—made possible a rapidly rising production of goods, with only a moderate increase in employment in these sectors of our economy. Job opportunities, on the other hand, expanded in the growing service industries. Thus, employment in goods production was only about 1 million higher in 1955 than it was in 1919, but employment in services more than doubled from about 14 million to nearly 30 million.

The substitution of machine power for muscle, the driving force of the growth in productivity, also produced important occupational changes. Unskilled workers engaged in heavy physical labor have become relatively less important on the farm and building site, and in the mine and factory. Our current high employment levels—about 64 million employed—indicate that they have found places in higher skill classifications.

Semi-skilled and clerizal workers constituted 42.5 per cent of all workers in 1950 compared with 25 per cent in 1910 and occupy the rank of importance held by farmers and laborers two generations ago. The skilled artisan craftsman also experienced an interesting transformation. While the group held its own, increasing from 12 per cent in 1910 to 14 per cent in 1950, the skilled worker now tends to be less closely identified with a single product or process.

Generally speaking, productivity

growth has tended to open new opportunities for the upgrading of labor. The low-skilled, backbreaking, and often dangerous jobs of earlier industry appear to be declining. Current developments now promise to reduce many routine, repetitive, and often monotonous operations in factories and offices.

The Future

While the achievements of the past and present are gratifying, we naturally wonder about the prospects for economic progress in the future. Much depends on the course of industrial productivity and the success we have in resolving the human problems that arise.

Optimism about the future of American productivity is created by the reports of forthcoming technological changes. Automation is perhaps the best publicized complex of labor-saving innovations. But equally impressive are the changes implied by atomic energy, railroad modernization, mine mechanization, chemurgy, and the nearly \$5 billion a year spent for industrial research and development.

The potentialities of these changes for higher living levels are correspondingly great. Projecting recent trends of productivity and employment growth into the future, we cannot fail to be impressed by the forecast of material abundance and leisure that seems to be implied. The Joint Committee on the Economic Report, for example, recently estimated that the economy's output would reach \$500 billion by 1965, implying a per capita income of nearly \$3,000.

The Committee's economists based their estimate on a projection of a somewhat higher rate of productivity growth than in the long-run past, some increase in the size of the labor force, and continuation of high levels of employment. They also forecast that workers would work fewer hours on the average through a lowering of the work-week or an extension of the length of vacations and holidays.

There is every reason to believe that the benefits of such progress will be widely diffused, as in the past, and that workers will continue to receive their fair share of goods and leisure that rising productivity will make possible. Differences between management and labor can be settled peacefully through the orderly process of collective bar-

To the extent that we foresee the necessary job readjustments and prepare for them, we will be able to realize more fully these benefits of industry's rising productivity. The experience of two large and expanding companies installing automation, recently surveyed by the Bureau of Labor Statistics, suggests that management can make these changes without serious dislocation of workers, provided it plans for the personal as well as financial and technical sides of the change.

Training Needs

Besides the planning of job displacement policies, the orderly adjustment to productivity growth in the future requires special attention to-day to the recruiting and training of workers for newly created occupations. Automation and other technological changes now seem most likely to reduce the demand for semi-skilled workers and call for more skilled and better trained labor forces. A greater demand for professionally trained persons, par-

ticularly engineers and scientists, is already apparent. A shortage of qualified skilled personnel very probably will become an important controller of the progress of automation and productivity.

One of the important labor problems for the future, therefore, is to adapt our apprenticeship training and educational and vocational guidance resources to the requirements of emerging technology so that workers can move to higher levels of attainment and self-development. The Department of Labor is seeking to promote a better understanding of the need for improving workers' skills. Unless adequate training programs are set up, the shortage of skilled workers is bound to be intensified. Such a condition would constitute an unnecessary waste of human resources.

Through studies the Department is now making, we also hope to learn more about new occupations so as to inform young workers about new opportunities. We must strive in various ways to expand the talent and abilities of our manpower, the nation's most important

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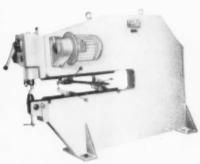


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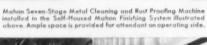
Pinched for Space Inside?...there's

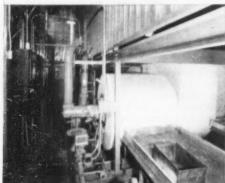
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Here's a typical example of straight-line finishing production unfettered by restrictions normally encountered inside manufacturing plants. This Finishing System was planned, engineered and built by Mahon on the roof of the Whirlpool-Seegar Corporation's Marion Division Plant, Marion, Ohio . . . it was built on the roof because suitable space inside the plant was not available. In the 700-foot long enclosure, which is permanent construction, are housed a Seven-Stage Metal Cleaning and Rust Proofing Machine, a Dry-Off Oven, a Cooling Tunnel, a Flow-Coater and Vapor Conditioning Chamber, Reinforcing Booth and Filtered Air Supply System. The Finish Baking Oven, which was already in place, was rebuilt by Mahon with three new Heating Systems. This is a Mahon solution of a problem confronting one manufacturer. If you have a finishing problem, or are contemplating new finishing equipment—for either Electrostatic Coating, Spray Painting, Flow-Coating or Dip-Coating—you, too, will find that Mahon engineers are better qualified to advise you on both methods and equipment requirements. No matter what your finishing job may be, you'll find that Mahon equipment will serve you better . . . because, Mahon equipment is engineered better and built better for more economical operation over a longer period of time. You can rely on Mahon to do the complete job on one contract—undivided responsibility for the entire system insures proper coordination, and safeguards you against complications which may upset your production schedules. See Mahon's Insert in Sweet's Plant Engineering File, for information, or write for Catalog A-656.

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Mahon Oven Control Cabinet, which houses Temperature Re-corder, Air Flow Switches and other Safety Control Devices, is shown at left. Mahon Oven Heating Unit appears in foreground.

Marketing notes and comments

HELPING FOREIGN DISTRIBUTORS SELL

How to demonstrate heavy equipment on the move.

Does it pay to give money away? And more . .

WITH competition tightening at home and living standards rising abroad, many American companies are turning increasingly to foreign markets. Among them is Sheaffer Pen Company which expects to double its export volume within the next five years.

The attainment of this goal requires the active co-operation of Sheaffer's distributors throughout the globe. Last month, Sheaffer welcomed to Fort Madison, Iowa, about 70 distributors from nations as different and as far apart as Ireland and Indonesia (see photo). Unlike most convention junketers, they enjoyed a close-up view of small-town America rather than the big city. After four days of discus-

sions on selling and promoting Sheaffer pens, they departed to spread the good word about fountain pens, one of the most potent symbols overseas of American culture.

Among the topics discussed were the trademark infringement problems in foreign lands where fly-bynight producers market imitation Sheaffer pens, complete even to the valued white dot. This shows a continued preference for U. S. pens.

The attendance at the convention attests to the magnetic quality of American marketing methods, since the distributors travelled thousands of miles for one purpose—to learn how to sell more profitably in their own markets.



Which way to double sales in the new foreign markets?

Bread on the waters

Does it pay to give money away? Apparently it does, judging by the experience of Z. Frank Inc., Chevrolet dealer in Chicago, Ill. Faced with an acutely competitive market in which most dealers saw their volume fast slipping away, Z. Frank sent silver dollars and giant post cards to 10,000 prospects. The post-card showed the dealer's facilities and the dollars were a real attention-getter. The result? A hefty hike of 40 per cent in business, and a new all-time high in total volume.

Package of Smoke

Like most markets, the buying of cigarettes has changed swiftly during the past five years. Newer brands have swept into sudden popularity while one-time leaders have slipped. Five years ago, 90 per cent of the market was held by the five leaders—Camel, Chesterfield, Lucky Strike, Old Gold, and Philip Morris—all regular size, unfiltered smokes

Now their share has shrunk to about 50 per cent, while filter tips account for approximately 20 per cent and king-size for about 30 per cent. Despite the cancer scare, total production this year is expected to come close to the all-time high marked up in 1952.

In earlier years, brands competed mainly on the basis of taste, but during the past year, a new element has emerged—packaging as a highly merchandisable factor in itself. The flip-top box, introduced by Marlboro (Philip Morris Ltd.), sent the sales of that once-lagging brand soaring so high that the company was forced to allocate supplies to dealers. So satisfactory have been the results from this new kind of



DIE CASTINGS



Pictured here is an aluminum die cast adding machine housing produced by LITEMETAL for a major manufacturer in the affice equipment field. It typifies the practicability and economy offered through die castings of the new lightweight aluminum and magnesium alloys—which make "portability" possible. Housings, shrouds and covers for many types of equipment, when die cast, are smooth, eyeappealing and merchandisable.

Meeting competitive situations, great cost savings are effected through the virtual elimination of labor otherwise required for machining, finishing and assembling; also provided are: mounting bosses, lugs and cored holes. Die castings such as these are mechanically strong and dependable — readily accept desired finishes. Important are the savings in weight which greatly facilitate handling during manufacturing processes and effect reductions in shipping costs.

Let's Talk It Over . . .

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Remember, too, that the production facilities of not one, but two superbly equipped plants can be yours for the asking. Your 'proving ground' for the finest welded wire products available today. Why not phone Union Steel today?

Union Steel's plants 1, 2 and 3, totalli over 385,000 square feet of floor spa containing the latest in modern wire for ing — fabricating — finishing equipmen

packaging, the company is putting all four of its brands, including Philip Morris, in similar non-crush, flip-top boxes. With the coming availability of box-making machinery from American Machine and Foundry, other cigarette makers will probably reflect this packaging revolution in the months to come.

To cure vacant stares

How are apartment house builders meeting the pressure of competition that has led to rising vacancy rates and slipping rents in many sections? The Lewyt Air Conditioner Corporation, New York, polled about 100 apartment house builders and found that it is no longer enough to boast about free gas and electricity and even doorman service. Instead builders have to come up with something dif-

Wall-to-wall carpeting, built-in television, dish-washers, built-in air conditioning, indoor playrooms for children as well as outdoor recreation areas and swimming pools are being planned in new construction. In addition to this new market for air conditioners, Lewyt also finds interest high among builders of private homes who advise home buyers that air conditioner units can be included in the mortgage with payments spread over decades rather than the year or two of conventional appliance purchasing.

Unscrambling gobbledygook

Do you think you know the real meaning of many terms used in business? Representative Carl Hinshaw (California) recently read into the Congressional Record his glossary of "terms used to keep the

wheels turning in government and industry." Here are some samples from his glossary:

Under consideration: Never heard

Under active consideration: We are looking in the files for it.

Make a survey: Need more time to think of an answer.

Note and initial: Spread the responsibility.

Consultant or expert: Any ordinary guy more than 50 miles away.

Program: Any assignment that can't be completed with one phone call.

What's ahead for housewares

Despite slipping margins and trade-in difficulties, manufacturers of housewares think the future market is as bright as a new appliance. This was one of the conclusions of a survey last month of 581 manufacturers displaying their goods at the National Housewares Manufacturers Exhibit in Atlantic City, N. J.

If these housewares manufacturers are among your customers, you will be pleased to know that they are almost unanimously optimistic about the future. In fact, 96 per cent of the manufacturers expect that their volume in 1957 will beat or at least hold even with 1956.

Ad musings

Here are some of the selling sentences which made us do a doubletake this month in reading ads: Insist on Hiram Walker's-the capitalistic, plutocratic Vodka.

Cheerful Long Island cemetery appeals to young couples.

Need a lift? Go wash your face. (Towel Supply Company).





Mobile demonstrations move sales curve upward

A spectacular rise in sales has been the result of the tailored marketing plans of the Eastern Heidelberg Company during the past two years. Among the ingredients of the plan are mobile demonstrations and after-sale service

and follow-up. The mobile demonstration of heavy equipment is rather unusual. A prospect for printing equipment need only lift the phone and have a printing shop on wheels driven to his door, anywhere in the U. S.

and













Union Steel's recent expansion, Plant 4, which contains an additional 84,000 sq. ft. of highly specialized wire fabricating equipment.





looking for your New York correspondent?

... focus on the people at

What do you look for in a New York correspondent?

- Prompt and efficient check clearing?
- · Assistance on portfolio analysis?
- · Up-to-the-minute credit information?

These are just a few of the 33 reasons why so many bankers select Chase Manhattan as their New York correspondent. We'll be pleased to send the complete listing. Just ask for "Doorway to Greater Usefulness. . ." What we think is equally important is the spirit of friendliness, of interest

What we think is equally important is the spirit of friendliness, of interest in *your* problems whether they are routine or unusual, large or small.

Why don't you talk to the people at Chase Manhattan soon?

CHASE MANHATTAN BANK

HEAD OFFICE: 18 Pine Street, N. Y. 15
Member Federal Deposit Insurance Corporation



More Than a Book A SALES PLAN

Pre-sales-call planning made easy with Dun & Bradstreet State Sales Guides.

Thousands of successful salesmen today use these sales guides to

- select prime markets
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- concentrate sales efforts
- locate new business
- protect order approval

Wire, write or phone the Dun & Bradstreet office which is nearest to you today for information on how your salesmen can get the

STATE SALES GUIDES

FOR DUN & BRADSTREET SUBSCRIBERS EXCLUSIVELY

for their territories - or fill in and mail the coupon below.

Dun & Bradstreet, Inc.

Dept. 11 99 Church Street New York 8, New York

Flease send me your bookiet	
"How to Get the Most Out of	ľ
Your State Sales Guide."	
We're subscribers to Dun &	

Bradstreet service. Send us State Editions for the following states

2.	

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INDIVIDUAL

BIGNING

COMPANY____

STREET_

STATE_

PERSONNEL

Continued from page 51

company contemplates cutting the payroll because of some temporary reduction of business or snarl-up in scheduling, and that the personnel manager is convinced it is important to keep intact the skills represented in the work force. As alternatives to temporary layoffs, he might suggest rescheduling of vacations or the undertaking of some delayed project in order to hold the men, as the situation permits or suggests.

The personnel manager must first rid himself of any notion that he is in the middle between management and labor. While he must be fair and willing to listen to individual or group arguments or complaints, there must be no question that he is part of management.

Having firmly established this (and it is achieved principally by his own mental attitude), the personnel manager is prepared to comment freely to management on matters which appear ill-advised to him. But with such advice must always go a positive suggestion for an alternative approach. For the problem, whatever it may be, does exist and must be solved. It is not enough for the personnel manager to veto one proposed solution; he must suggest other ways to deal with the problem at hand. If he does so-even if his suggesion is deficient or is not the one finally accepted-two things will happen: (1) he will be part of the decision-making group; and (2) in recognizing that the problem does need a solution, he will firmly establish that he is not simply an advance agent of the union raising a premature grievance.

Two Theories

Management theorists today lay stress on two important principles, both of which are more and more widely accepted by American enterprise. Both principles are interrelated, and the application of both to personnel relations can mean the first real integration of the personnel relations man into the management of the enterprise.

These theories are: (1) the concept of group management, decisions made by a group of usually informal alignment; and (2) the concept of the management man as a "generalist" rather than as a "specialist."







Desk Drawer File contains 25 Pendaflex hanging folders. Changes desk data reference from so slow to quick pick!

Clip coupon for catalog, name	of dealer
Oxford Filing Supply Co., In 27 Clinton Road, Garden City, N	c.
Name	
Address	
City, State	

Group management has taken over where attempts to create and maintain formal line-and-staff relationships have failed. In the personnel relations field itself, attempts to define or effectuate line-and-staff relationships have not succeeded. For example, witness almost any plant personnel manager's uncertainty as to his own relationship to the plant manager (his line superior) vs. his relationship to the companywide personnel executive (his staff superior).

Group management, usually on an informal basis with members of the group varying with the nature of the decisions, has already taken hold in larger enterprises. But, like other new management theories, it will probably permeate in gradual fashion to smaller units.

Broadening Outlook

Accompanying the newer theories of group management are those of generalism as opposed to specialization-the broadening of the manager's outlook and capacity. As expressed by William B. Given, Jr., chairman of the board, American Brake Shoe Company, "What we in our company are advocating and trying to put into practise is an overthrowing of those restrictive influences (specialization) and a return to natural instincts. It requires constant all-out effort to discredit the deep-rooted theories of soloism and specialism and to sell a conviction of the importance of being an all-around player on the team."

Some personnel men go to a job with a vague, idealistic hope that they can and are expected to play the role of mediators. They cannot succeed.

Consider of how much more value they can be if they sit in on the daily production meeting, where they may head off problems before they are created, rather than holing up in their own offices, acting merely as mediators.

The personnel man, like every other manager with a specialty, can learn much of the whole company's problems in such meetings and make himself correspondingly more useful. Each retains his specialized knowledge, giving it to the others as need for information and advice arises; but each becomes a generalist, as far as his interest is concerned.

Personnel relations grew up in an age devoted increasingly to special-

MANAGEMENT TEAM AVAILABLE

with INDUSTRIAL ELECTRICAL EQUIPMENT BACKGROUND

Qualified to take over complete management of any company or civision manufacturing electrical or kindred equipment that is presently in the doldrums, needs revitalizing or reorganization.

Long, successful record of achievement. Most recent was to start up new operation now doing annual volume in seven figures after only two years. This two man "brain trust" is schooled in Sales, Advertising, Distribution, Finance, Credits, Engineering and Production. Expert trouble-shooters.

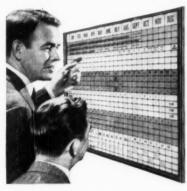
Given authority and complete cooperation they can effect improvements that will more than justify their price.

They will deal with principals only. All replies held in stric!est confidence. To contact this management team write:

TRI-STATE ADVERTISING COMPANY, INC.

WARSAW, INDIANA

You Get Things Done With Boardmaster Visual Control



- ** Cives Graphic Picture of Your Operations Spotlighted by Color
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- Amade of Metal. Compact and Attractive Over 50,000 in use.

Complete price \$4950 including cards

FREE 24-PAGE BOOKLET NO. D-200

Write for Your Copy Today

GRAPHIC SYSTEMS

55 West 42nd Street * New York 36, N. Y.

ization. The belief that the personnel man should be a specialist, even a professional, was a natural accompaniment to its growth. But there are greater possibilities for personnel management in the newer theories of group management and "generalism" than for any other staff function. For at last there will be recognition that all of management is concerned with men, and the personnel man will have an increasing opportunity to share in decisions covering all phases of the enterprise.

As the personnel expert becomes integrated into group decision-making, management generally will become aware of the all-permeating nature of human relations.

The Choice Ahead

Thus, the answer to whether or not the personnel manager can be part of top plant management is an emphatic "yes," provided only that he and others in the plant management group are all willing to break down the artificial barriers of specialists, line-and-staff, advice-andauthority, and recognize the necessity and wisdom of group thinking and group action.

A clear choice presents itself to the personnel manager. He can be the man, as John L. McCaffrey, President of International Harvester Company, describes him, "... for whom life begins and ends with a legalistic interpretation of the union contract and who never looks past the grievance committee, gathered around his desk, to catch a glimpse of the human individuals who work in his plant."

Or, as an "all-around player on the team," the personnel manager can become a specialist only in the broad art of management itself, bringing to himself and his field greater prestige and influence than was ever previously imagined.

THE END



"Have you any references besides this card from a weighing machine?"





Self-Dumping Hoppers cut scrap handling cost

A messy, time-consuming salvage operation was turned into a neat, one-man job for the Verson Allsteel Co., Chicago. By switching from wheelbarrows and scoops to Roura Self-Dumping Hoppers, "scrap segregation was also made practical for the first time." Now a worker moves through the plant shoveling steel filings, turnings, cuttings, and other scrap into several dozen Roura Hoppers.

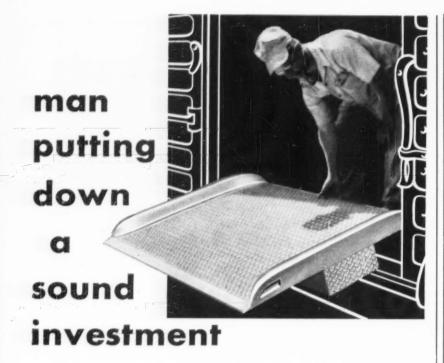
Then with a standard lift truck, he moves the Hoppers to semi-trailers outside the factory. With a flip of a handle, each Hopper dumps itself, rights itself, locks itself, and is then moved back for another load.

Roura Self-Dumping Hoppers are saving time and cutting costs throughout industry by swift and efficient bulk materials handling.



WANT MORE DETAILS? Attach this coupon to your
letterhead and mail to

ROURA IRON WORKS, INC.
1404 Woodland Ave., Detroit, Michigan



. . . ONE THAT WILL SPEED LOADING AND KEEP COSTS DOWN

This company has made a wise investment - one which will pay dividends over a long period of time! The man above is putting a Magliner magnesium dock board in place on the company's dock. This new Magliner will speed loading . . . get more out of power trucks and other loading equipment . . . keep costs down. Made of light, strong magnesium, the dock board is easily moved and positioned by one man. No heavy lifting . . . no risk of physical injury, it will protect men, loads and equipment against accidents and costly damage.

Magliner magnesium dock boards are designed to meet both ordinary and out-of-the-ordinary loading conditions . . . eliminate costly delays and bottlenecks . . . make loading costs go down! Engineered and built to take it, they safely handle loads up to 20,000 lbs.

Magliner dock boards will pay other big dividends, too. They are low in initial cost and because they provide dependable, long-life service

with less maintenance, they give you greater economy ALL-ways.

Find out today, how Magliner magnesium dock boards can cut loading costs in your operation. Write for Bulletin DB-204.



- . Tire-Saver safety curbs-prevent truck runoffs and stop power truck tire damage. An ex-clusive Magliner feature.*
- Beveled edges—avoid hazardous load jar, eliminate equipment damage and load loss.
- · Rugged, permanently attached understructure. Fits snugly between dock and carrier—provides positive, automatic position-lock.

 Triple strength curb ends*—double tapered
- *Patent Pending

SEND YOUR NAME AND ADDRESS FOR A COPY OF BULLETIN DB-204, TO MAGLINE INC., P. O. BOX 18, PINCONNING, MICHIGAN.



Magliner Dock - and - Ramp combination ervices high-floor trailers. Allows greater safer loading longer slope Dock board may be used independently



Multi-Station volume loading? Magliner Magnesium Perma-Docks are the answer. A low cost, permanent installation.

Canadian Factory: Magline of Canada, Ltd., Renfrew, Ontario

THE EQUIPMENT TRUST

Another Approach to the Fleet Leasing Problem

The equipment trust type of financing, popular with railroads to obtain rolling stock, has been turned to use in automobile fleet leasing operations, according to S. J. Lee, a consultant in fleet operations. Under this type of financing, the funds are usually provided by life insurance companies, financial institutions, or trust funds. These remain the actual owners of the vehicles. However, the maintenance, insurance, taxes, and all operating expenses of the equipment are the responsibility of the lessee, who controls the equipment as if it were his own.

The cost of license plates, sales taxes, and any expenditures necessary to get the car into the hands of the user are added to the cost of the vehicle. The whole amount is then capitalized and becomes the base against which the user is billed a monthly charge to cover depreciation plus service and finance charges.

The rate of depreciation varies according to the formula used. It may be established for a three-year period with the user paying 1/36 of the total capitalized cost of the vehicle each month plus interest. Or it may be set at 2 or 2.5 per cent of cost.

The book value of the vehicle can be determined at any time in terms of the depreciation payments that have been made, thus establishing profit or loss when it is sold. Profit over the unamortized balance is shared; a loss is made up by the user.

The investor or trustee performs only a management function in that it purchases new vehicles, gets them in the hands of the users, and sells the used cars when the arrangement is terminated. A lease agreement between the trustee and the user of the vehicles is the instrument that ties together these services.

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of New York

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68 Overseas Branches, Offices, and Affiliates .

Statement of Condition as of June 30, 1956

CASH, GOLD AND DUE FROM BANKS		\$1,611,279,820
United States Government Obligations .		1,113,532,813
OBLIGATIONS OF OTHER FEDERAL AGENCIES		5,576,158
STATE AND MUNICIPAL SECURITIES		467,182,961
OTHER SECURITIES		124,112,626
LOANS AND DISCOUNTS		3,477,523,982
REAL ESTATE LOANS AND SECURITIES		39,510,743
Customers' Liability for Acceptances .		64,044,007
STOCK IN FEDERAL RESERVE BANK		15,000,000
OWNERSHIP OF INTERNATIONAL BANKING		
CORPORATION		7,000,000
BANK PREMISES		34,543,905
ITEMS IN TRANSIT WITH BRANCHES		3,558,930
OTHER ASSETS		6,763,953
Total		\$6,969,629,898
		-

LIA

BILITIES	
Deposits	\$6,249,720,388
Liability on Acceptances and Bills \$79,416,817 Less: Own Acceptances in	
Portfolio	68,046,170
Due to Foreign Central Banks (In Foreign Currencies)	22,042,500
RESERVES FOR:	
UNEARNED DISCOUNT AND OTHER UNEARNED	26,060,635

INTEREST, TAXES, OTHER ACCRUED 35,125,845 6,000,000
 Surplus
 ...
 300,000,000

 Undivided Profits
 ...
 62,634,360
 562,634,360

Figures of Overseas Branches are as of June 25.
\$519,982,422 of United States Government Obligations and \$28,118,300 of other assets are pledged to secure Public and Trust Deposits and for other purposes required or permitted by law.

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